YACHTING

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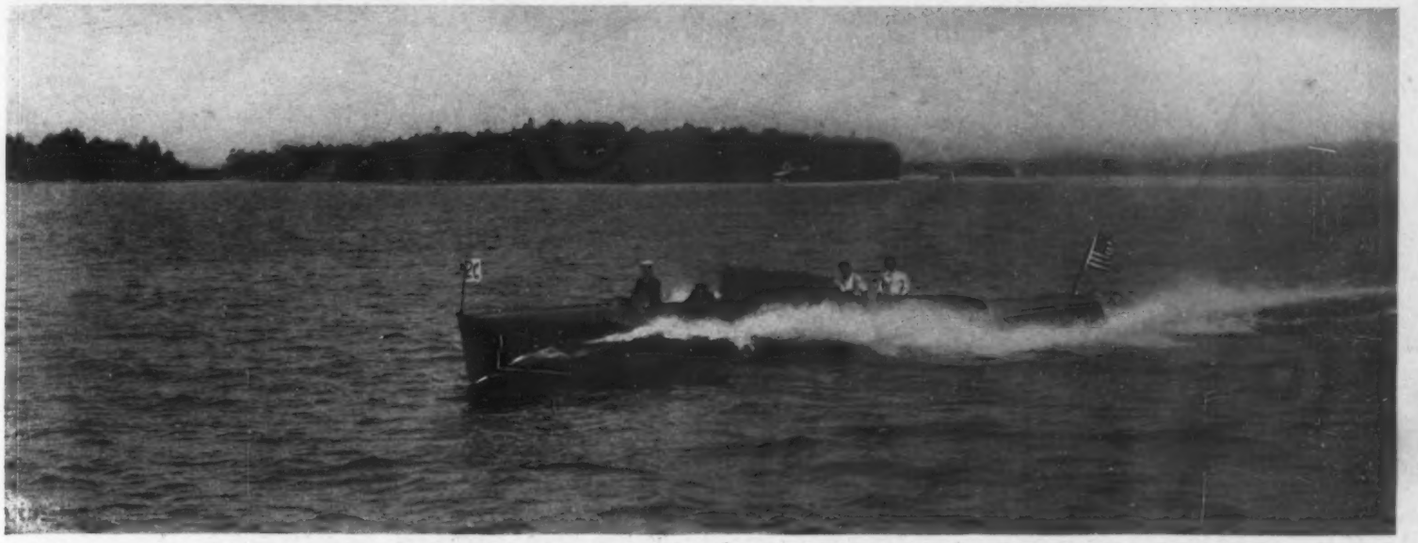


STANDARD, WINNER OF THE SPEED RECORD TRIALS IN 1906, WITH A RECORD OF 29.31 STATUTE MILES AN HOUR

The Strife for Speed and What It has Accomplished

By DICKSON WYLIE

AS an art or craft, the building of vessels to be used for pleasure is something more than a century old in this country. It dates back to 1808, when Captain George W. Crowninshield, of Salem, Mass., the home of witch fighters and fast merchant ships, built the first yacht in America. As a more or less exact science, naval architecture is old enough to vote, with, perhaps, half a dozen years in excess; and even in its comparatively short life it has been the subject of many radical modifications. Edward Burgess, who came into the limelight with Puritan, in 1885, was almost, if not quite, a pioneer in his work, and yet Burgess' ideas and theories were remodeled almost out of recognition by Herreshoff when the latter built Gloriana and Wasp in 1891 and 1892; and the Wizard of Bristol has reformed his lines again and again in the twenty years since. All this relates to sailing vessels; when we come into the field of motor-driven craft we find that one leading idea has surmounted another so fast that we can hardly keep tabs on them.

The question naturally arises: how much have we gained in speed in all the changes of lines, form and principles of yacht building? In so far as sailing vessels are concerned, there is really no definite answer, because there is no way of ascertaining the driving power—the force of the wind—on any one day, or of making any comparison of the driving power of different days. While we are about it, let's take a look at the record of the races for the America's Cup.

There have been twelve contests for the trophy during the sixty years it has been in this country, and in the first four the defense was made by boats already in existence and in regular use before the making of the race, while, with one exception, a new yacht, built for the occasion, has defended in each of the eight events beginning with that of Puritan and Genesta in 1885. The exception was that of 1901, when Constitution, built as the defender of that year, failed to demonstrate superiority over Columbia, the champion of 1899, and was discarded.

It has been the opinion of the experts that in each case there has been an improvement in speed, but the records of the cup races do not certify this, nor could they do so, because no man can tell whether the wind of yesterday was of the same driving power as that of a year or two years ago. Nevertheless, it is interesting to know that in the races of recent years the elapsed times have been shorter than those of races in earlier days, excepting one. But that one exception sets us to thinking.

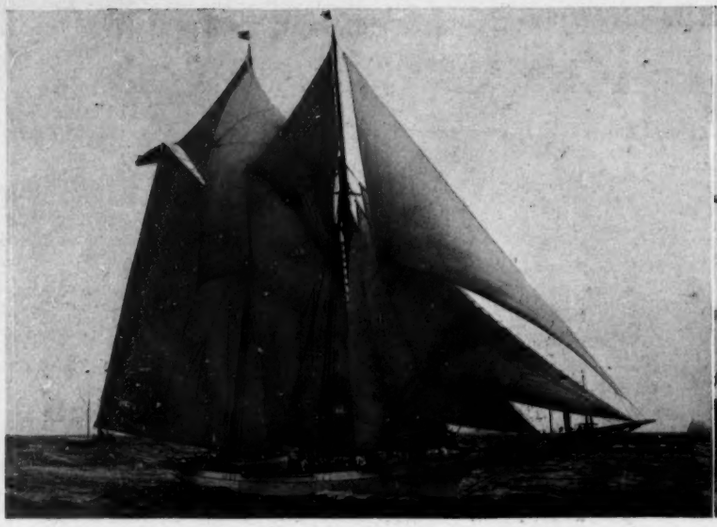
On October 18, 1871, the schooner Columbia, sailing against the English schooner Livonia, covered a course of 20 miles to leeward and return in 3 hours 1 minute and 33 seconds, and this time has never been beaten in a cup race, nor indeed has it been approached within two hours. While the course was laid out as leeward and windward, the wind changed after the start, so there was more reaching than running or beating; but the fact remains that the old boat covered 40 miles, some of it in windward work, at the rate of something faster than 13 miles an hour.

The nearest approach to this time on a 40-mile course was made by Puritan on September 16, 1885, in a race with Genesta—a race that will never be forgotten by anyone who saw it. The condition of wind and water was such as to be favorable to fast time; Puritan made the distance in 5 hours 3 minutes 14 seconds.

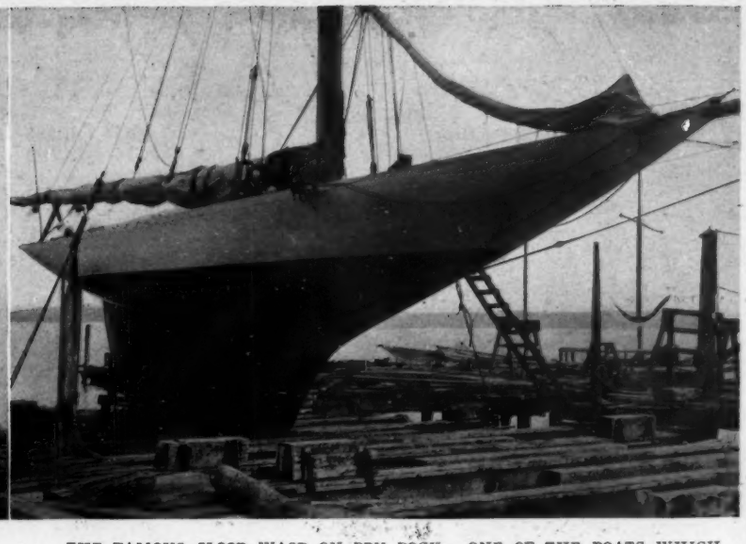
Sappho's time over a similar course in 1871, three days after Columbia's achievement, was 5 hours 33 minutes 24 seconds. Madeline required nearly 7 hours and 20 minutes in 1876, and the little Mischief in 1881 did 16 miles, leeward and windward, in period of time that would figure out something over six hours for the 20-mile course. Mayflower, in 1886, did not have as good a wind as had Puritan, for she was only 11 minutes short of 7 hours in making the same distance; but Volunteer, a year later, covered the same sort of course in 5 hours 42 minutes and 56 seconds.

Since 1887 the windward and leeward course has always been 15 miles and return, and the proportion of Puritan's time for the distance would be 3 hours 47 minutes 25 seconds; but that time has been beaten three times: first by Vigilant, which, in 1893, made a record of 3 hours 24 minutes and 39 seconds—the fastest as yet; then by Columbia, in 1899, with an elapsed time of 3 hours 38 minutes and 25 seconds; and lastly by Reliance, in 1903, in 3 hours 41 minutes 17 seconds.

Beginning with the Vigilant-Valkyrie event of 1893, at least one race of each contest has been sailed over an equilateral triangle



THE OLD SCHOONER COLUMBIA, WHOSE TIME OF 3.01.33 OVER A 40-MILE COURSE HAS NEVER BEEN BEATEN IN AN AMERICA'S CUP RACE



THE FAMOUS SLOOP WASP ON DRY DOCK. ONE OF THE BOATS WHICH REVOLUTIONIZED YACHT DESIGN AND MADE HERRESHOFF FAMOUS

of 10 miles a side, one leg of which has been to windward, or as nearly so as the fickleness of wind has permitted. And it is interesting to know that Vigilant did her triangle, four days before her windward and leeward course, in 3 hours 25 minutes 1 second—just 32 seconds slower than her other record. But Vigilant's time over the triangle was beaten by Columbia, in 1901, with the record for the course of 3 hours 13 minutes 18 seconds, and by Reliance, in 1903, with an elapsed time of 3 hours 14 minutes 54 seconds. Again there seems to have been a gain in speed.

It is hardly necessary to say that the courses referred to were not measured by means of an engineer's tape and transit, but they were laid out under the supervision of naval members of the New York Yacht Club—men trained in the accurate determination of position. It may be assumed, therefore, that the courses were as nearly right as it was possible to make them in open water.

There is indirect evidence of rather a curious sort that we have gained in speed in the later development of yacht building. For more than half a century the fashioning of fishing vessels and pilot boats on the one hand, and of yachts on the other, has been on parallel lines. Many yachts that have proven to be fast in their times have been modeled on fishermen or pilot vessels that have already proved to be faster than their fellows; and, on the other hand, after Burgess designed three successful cup defenders the fishermen of the Massachusetts coast asked him to design fishing vessels that should embody the elements of speed that were found in Puritan and her sister, and that should be easier to handle than their old boats, yet should have good carrying capacity.

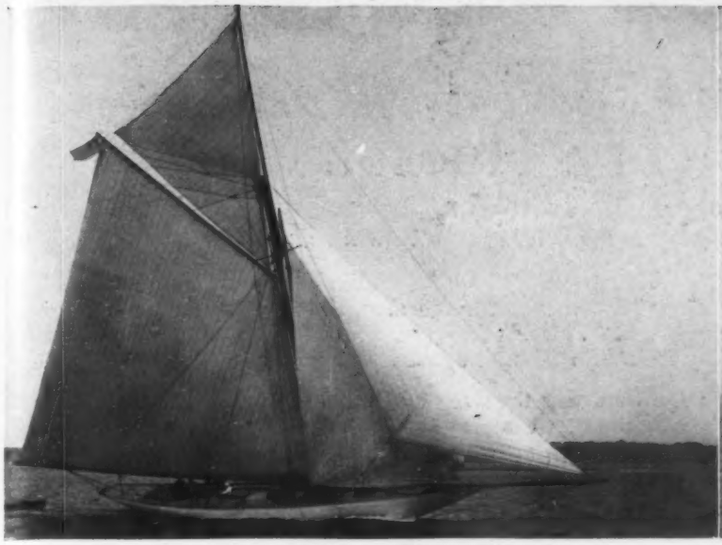
Burgess complied with the demand and gave them boats that were better dividend earners than the ones in use, and in a considerable degree the improvement was due to greater speed and ease of handling. One may get results rather more definite in respect to the speed of fishing vessels than one can in respect to yachts, inasmuch as the fishermen are going and coming to and from the fishing grounds for months on end, and a comparison of all the trips made by one boat in two or three seasons with those made by another in a similar period will give a fairly good idea of the relative speed of the boats. And it is a matter of record that the Burgess fishermen were faster than their predecessors. Moreover, what Burgess did in the way of rebuilding the fishing fleet a quarter of a century ago has been repeated in a large measure by Crowninshield.

All of which is evidence also, that the radical ideas developed in the racing field become of real use and value, in part if not in whole, in the commercial marine. Racing men, with their utter disregard of expense, pay for the experimental work that is of great benefit to those who build and operate vessels for business purposes, and for which neither the commercial marine interests nor the shipbuilding industry can afford to pay. No firm in the fishing business would have dared, on its own initiative and without the information gained by observation of the racing fleet, to have built the fishing schooner Patricia, which created quite a sensation when she came to New York on a trip five or six years ago; but that vessel, designed by Crowninshield, and really a yacht in almost every respect excepting that of cost, was the pride of the industry and an exceptional money earner.

The real advance in speed on the water during recent years has been made in the field of motor boating, and the gain has been enormous, closely approaching 100 per cent in the past eight years. The first motor boats to be seriously termed "high-speed" boats were some of those built in 1904. That was the year of the first race for the gold cup of the American Power Boat Association, and in that contest, at the Columbia Yacht Club, on June 24, Standard achieved a speed of 20.53 nautical, or 23.63 land miles an hour. It was never claimed that the course was absolutely accurate, but it was laid out as nearly so as might be with reference to docks and buoys on the Hudson River. Four days later Vingt-et-un, in a race for the auto-boat challenge cup (so called) at Larchmont, covered a distance of 30 nautical miles at the rate of 19.45 nautical, or 22.40 statute miles an hour.

This course was accurate. It was from the southwest stakeboat buoy at Larchmont to the "lump" buoy off Eaton's Neck and return. As both buoys are fixed marks, placed by the Lighthouse Board and located on the government chart, the distance could be scaled to a nicety. On July 6 of the same year Challenger, the first boat to go to England to compete for the Harmsworth Cup, made a trial run of 21 miles on the East River, four times over the distance separating two buoys that scaled 5¼ miles on the chart. Her record was at the rate of 23 nautical, or 26.5 statute miles per hour; but in calculating this record the observers subtracted from the total elapsed time the time required in making the several turns—an unusual proceeding in racing on the water, but the observers were automobile racing men, and they made use of the methods with which they were familiar. Challenger, by the way, was slightly under 40 feet in length, had an engine of 150 horsepower, and was the talk of the motor boating world, in that she had such tremendous power for such a small boat. Contrast this with the 800 horsepower of Maple Leaf IV, a boat of the same length!

Speed did not increase very fast during the next two years, rather less than three statute miles an hour being the net gain, and this was shown in the mile speed trials in the National Motor Boat Carnival on the Hudson River in September, 1906. These trials were made under what are known as British Admiralty conditions, and were the first trials of the motor boats to be made under these conditions in this country, although mile trials of naval vessels, and especially of torpedo boats and destroyers, are made under them regularly. This is the method: A boat is run



WASP, AN IMPROVED GLORIANA, BUILT IN 1892

GLORIANA, 1891, SHOWS HOW HERRESHOFF REMODELED EXISTING THEORIES

six times (three times each way) over a measured mile, the ends of which are marked by range poles or targets on shore.

There are two poles or targets at each end, one on the edge of the water and one some distance inshore, so that the beginning and ending of the mile run is made when the two are brought into line by the timer, if he be on the boat, or when the boat crosses the line as extended to the eye of an observer at the inshore end of the range. The speed per hour is calculated for each run from the times of the several runs. Then the average is taken of the first and second run, the average of the second and third, of the third and fourth, of the fourth and fifth, and of the fifth and sixth. This gives five averages. From these, four are made in like manner; from these four, three are made; from the three, two are calculated, and, finally, the average of the two is the speed record, this result being known as "the mean of mean of means."

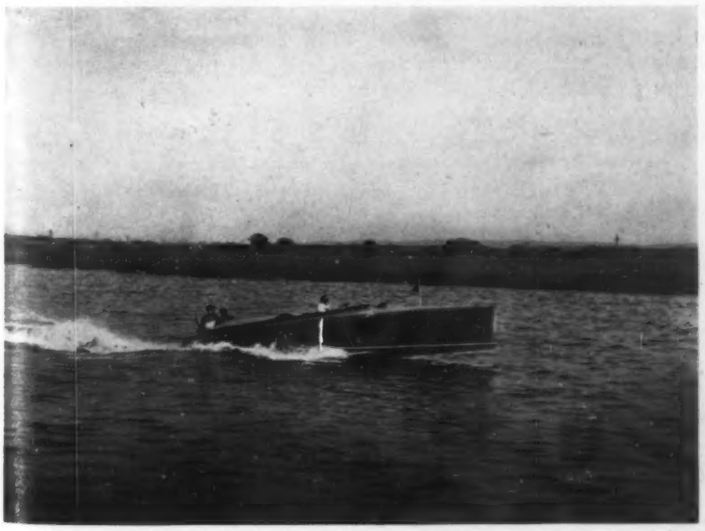
Under these conditions, in the Carnival of 1906 Standard made a speed record of 25.45 nautical, or 29.31 statute miles an hour. The course was the navy range along Riverside Drive, and, therefore, must be considered as having been accurately established. In the Carnival of the following year Irene, in mile trials, conducted in a similar fashion, beat the record a trifle by covering the distance at the rate of 25.59 nautical, or 29.47 statute miles per hour.

The gain in three years, therefore, was only about three statute miles per hour. But there was a big jump in 1908. In that year the first race in this country for the Harmsworth Cup, which had been brought from England by the original Dixie in 1907, was held on Huntington Bay, and Dixie II covered the 30-mile course at the speed of 27.75 nautical, or 32 statute miles an hour. This course was not accurately surveyed, but was laid out as accurately as was possible with log and compass and checked by cross bearings by men who had had considerable experience in work of the sort, and probably was as nearly correct as to distance as are any of the America's Cup race courses. The same year Dixie II was sent over the New York Yacht Club range in Hempstead Harbor and achieved a record of 31.35 nautical, or 36.05 statute miles per hour. This was a gain of more than 6.5 statute miles in a year.

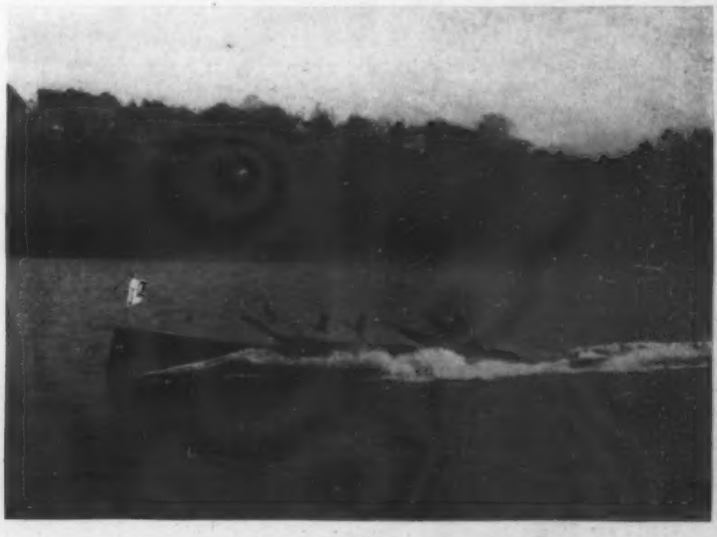
Nothing of importance in the way of speed was achieved in 1909. There was no race for the Harmsworth Cup to stimulate the building of fast boats, and the only important speed contest was that for the gold cup of the American Power Boat Association on the St. Lawrence River in August. In this event Dixie II—really Dixie III, as it was now a new hull with the engine of Dixie II—bettered the record of the previous year by a fraction of a mile.

Again there was a big gain in speed in 1911. In the Harmsworth Cup race of that year Dixie IV, the last of the famous

(Continued on page 386.)



ANKLE DEEP, THE LATEST HYDROPLANE BY THE DESIGNER OF THE FAMOUS DIXIES



DIXIE I, THE FASTEST BOAT IN HER DAY, DESIGNED BY CLINTON H. CRANE

Sailing With Henry Hudson

Being the Story of the Third and Fourth Voyages of the Great Navigator to the Coast of North America, as Told by His Log Books

FOREWORD

BOLDEST and most successful of early Arctic explorers was Henry Hudson, an English shipmaster, who first came into prominence when he was hired by the Muscovy Company, a wealthy association of British and Russian merchants, to find a way to the Orient by the Arctic Sea in the year 1607.

This voyage was made in a ship which had survived the earlier Frobisher expedition to Arctic America. Hudson skirted the coast of Greenland to the parallel of 73 degrees—a feat which it would now be no easy matter for a full-powered steamer to accomplish, by reason of the heavy ice floes usually found in that region. Then steering "by the North, easterly," he came to Spitzbergen, explored the coast in his thorough, unemotional manner, and set off North for the Pole itself. The little vessel was stopped by impenetrable ice at 82 degrees north latitude; but even so, Hudson's ship had established a mark which was not to be passed for nearly 300 years and which *only five ships in the whole history of Arctic exploration have ever beaten!*

His next expedition, also in the employ of the Muscovy Company, was to the northeast, and took place the following summer. He reached Nova Zembla, and, finding further progress impossible in that direction, put about and proposed sailing to the northwest; but the season was so far advanced that, at the earnest solicitation of his crew, he returned to England.

Soon after arriving home Hudson, whose fame had by this time spread abroad, was summoned to Holland and given a commission by the Dutch East India Company to make a voyage for them with the same purpose as that of his former expeditions. The actual log of this voyage, written by Robert Juet, the mate, appears below. To condense the narrative, some of the less eventful days' entries have been omitted. Also, explanatory notes have been inserted suggesting the probable location of doubtful points of landfall and discussing in general the seamanship and navigation of the times. The phraseology and spelling of the original manuscripts have been retained. Matter in parentheses is editorial.

It was on this voyage that Hudson, after another attempt to go to the northeast, determined to adopt the suggestion of his friend Captain John Smith and seek a passage to Cathay by the West, along the fortieth parallel of latitude. The result was the exploration of a large portion of the Atlantic coast of North America and the discovery of the river which bears his name. Hudson's ship on this voyage was a yacht of the Dutch East India Company—Half Moon—a weatherly little vessel, only 58½ feet long between perpendiculars, but proportioned on a generous mold, as the photographs of the replica show. Her beam was 16 feet 2 inches, and draft aft only 7 feet.

He sailed under the Dutch flag, to be sure; yet it is rather an anomaly that on the river named in the honor of this Englishman, in a land inhabited by English-speaking people, there should float to-day a palatial excursion steamer bearing the name of "*Hendrik* Hudson"—mute testimony of the inaccuracy of popular ideas concerning the beginnings of history in our country.

The replica of the Half Moon, from which the photographs reproduced here were taken, was built from models of ships of the period, and from existing data of the famous craft, and is true to the minutest detail of rig, construction, etc.

The third Voyage of Master HENRY HUDSON toward Nova Zembla, and at his returne, his passing from Farre Ilands, to New-found Land, and along to fortie foure degrees and ten minutes, and thence to Cape Cod, and so to thirtie three degrees; and along the Coast to the Northward, to fortie two degrees and an halfe, and up the River neere to fortie three degrees. Written by ROBERT IUET, of Lime-house.

On Saturday the five and twentieth of March, 1609, after the old Account, we set sayle from Amsterdam; and by the seven and twentieth day we were downe at the Texel; and by twelve of the clocke we were off the Land, it being East of us two leagues off. And because it is a journey usually knowne, I omit to put downe what passed till we came to the height of The North Cape of Finmarke, which we did performe by the fift of May (stilo novo), being Tuesday. On which day we observed the height of the Pole, and found it to bee 71 degrees and 46 minutes; and found our Compasse to vary six degrees to the West: and at twelve of the clocke, the North Cape did beare South-west and by South tenne leagues off, and wee steered away East and by South and East.

This position gives us an opportunity to check up on the accuracy of observation attainable with the crude instruments of the time—astrolabe and cross-staff. The latitude of the North Cape is 71° 11′ N. If the land bore as stated above and at the given distance, the ship would be in latitude 71° 29′ N.; whereas Hudson's observed latitude was 71° 46′ N.—an error of 17 nautical miles!

Proceeding eastward into Barent's Sea, Hudson finds his way blocked with ice and is constrained to turn back, abandoning hope of discovering a northeast passage to Cathay that season.

The five and twentieth (May), much wind at North-east, with some snow and haile. The first watch the wind came to the East a fine gale, and so came to the North-east, the second watch at foure of the clocke, and freshed in: And at eight of the clocke it grew to a storme, and so continued. At noone we observed, and made the ship to be in 67 degrees 58 minutes. Wee continued our course South-west, twelve leagues a watch. At nine of the clocke, Lofoote (Lafoten Ids., off west coast of Norway) did beare East of us 15 leagues off. And we found the Compasse to have no variation. The wind increased to a storme.

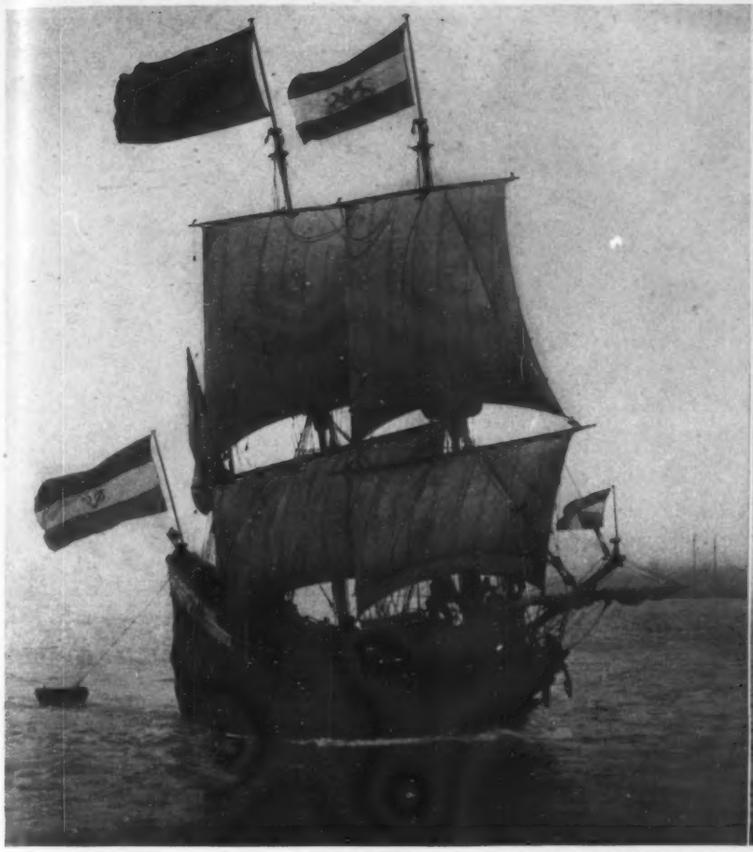
The six and twentieth, was a great storme at the North North-east, and North-east. Wee steered away South-west afore the wind with our fore course abroad: for wee were able to maintayne no more sayles, it blew so vehemently, and the Sea went so high and brake withall, that it would have dangered a small ship to lye under the Sea. So we skudded seventy leagues in foure and twentie houres. (An average of 7.5 knots.) The storme began to cease at foure of the clocke.

They keep on with variable winds, making good a general south-westerly course, and raising the Faröe Islands (between Iceland and the northern extreme of Scotland) on the afternoon of the 28th. The ship is unable to come up with the land that day, being held back by an adverse current.

Thirtieth faire weather; the wind at South-east and East South-east. In the morning we turned into a Road in Stromo, one of the Ilands of Farre (Faröe), betweene Stromo and Mugge-nes, and got in by nine of the clocke: for it flowed so there that day. And as soone as we came in, we went to Romage, and sent our Boat for water, and filled all our emptie Caskes with fresh water. Wee made an end of our Romaging this night by ten of the clocke.

The one and thirtieth, faire Sun-shining weather, the wind at East South-east. In the fore-noone our Master with most of his Company went on shoare to walke, and at one of the clocke they returned aboord. Then we set sayle.

The first of Iune, stilo novo, faire Sun-shining weather, the wind at East South-east. We continued on our course South-



THE HALF MOON CLOSE HAULED. THE BONNET ON HER FORESAIL IS PLAINLY SHOWN

Copyright, 1909. E. Levick.

IN A STIFF QUARTERING BREEZE THE OLD HALF MOON COULD DO SEVEN KNOTS

west and by West. At noone wee observed the Sunne, and found our height (latitude) to be 60 degrees 58 minutes: and so continued on our course all night with faire weather. This night we lighted Candles in the Bittacle againe.

The second, mystie weather, the wind at North-east. At noone we steered away West South-west, to find Busse Iland, discovered in the yeere 1578, by one of the ships of Sir Martin Frobisher, to see if it lay in her true latitude in the Chart or no: wee continued our course as before all night, with a faire gale of wind: this night we had sight of the first stars, and our water was changed colour to a white greene. (They have crossed the north-east extension of the Gulf Stream.) The Compasse had no variation.

The third, faire Sun-shining weather; the wind at North-east. We steered on our course South-west and by West, with a stiffe gale of wind; at noone we observed and found our height to bee 58 degrees 48 minutes. And I was before the shipp 16 leagues, by reason of the Current that held us so strong out of the South-west. For it is eight leagues (20.5 nautical miles) in foure and twentie houres. Wee accounted our selves neere Busse Iland: by mid-night wee looked out for it, but could not see it.

This "Busse Iland" appears to be one of the chimerical lands of the early navigators. Hudson speaks of it above as having been seen by Frobisher in 1578. It was not Iceland, because the position of that was well known at this time.

The fift, stormie weather, and much wind at South, and South by East, so that at foure of the clocke in the morning, wee tooke in our fore-sayle, and lay a try (hove-to) with our mayne corse, and tryed away West North-west foure leagues. But at noone it was lesse wind and the Sunne shewed forth and we observed, and found our heigth to be 56 degrees 21 minutes. In the after-noone the wind vered to and fro betweene the South West and the Southeast, with raine and fogge, and so continued all night. Wee found that our ship had gone to the Westward of our course.

The seventh, faire sun-shining weather all the fore-noone, and calme until twelve of the clocke. In the after-noone the wind came to the North-west a stiffe gale. We steered South-west by West, and made a South-west way. At noone we found the height to bee 56 degrees one minute, and it continued all night a hard gale. The eight, stormy weather, the wind variable betweene West and North-west, much wind: at eight of the clocke wee tooke off our Bonnets. (The lower sails were fitted with bonnets, as a fore-staysail sometimes is to-day.—See photograph.)

The fourteenth, faire and cleere Sun-shining weather: the winde variable betweene the North-west and South-west by West. At mid-night I observed the North starre at a North-west by West guarde; a good observation, 49 degrees 30 minutes. And at noone wee observed the Sunne, and our heigth was 48 degrees 6 minutes. And I made account we ranne betweene the two observations twelve leagues. At one of the clocke in the after-noone, wee cast about to the Westward, and stood so all night: the winde increased to a storme, and was very much winde with Raine.

The fifteenth, we had a great storme, and spent over-board (carried away) our fore-mast, bearing our fore corse low set. The sixteenth, we were forced to trie (i. e., heave-to) with our mayne sayle, by reason of the unconstant weather. So we tried foure watches, South-west and by South eight leagues and an halfe, and two watches sixe leagues.

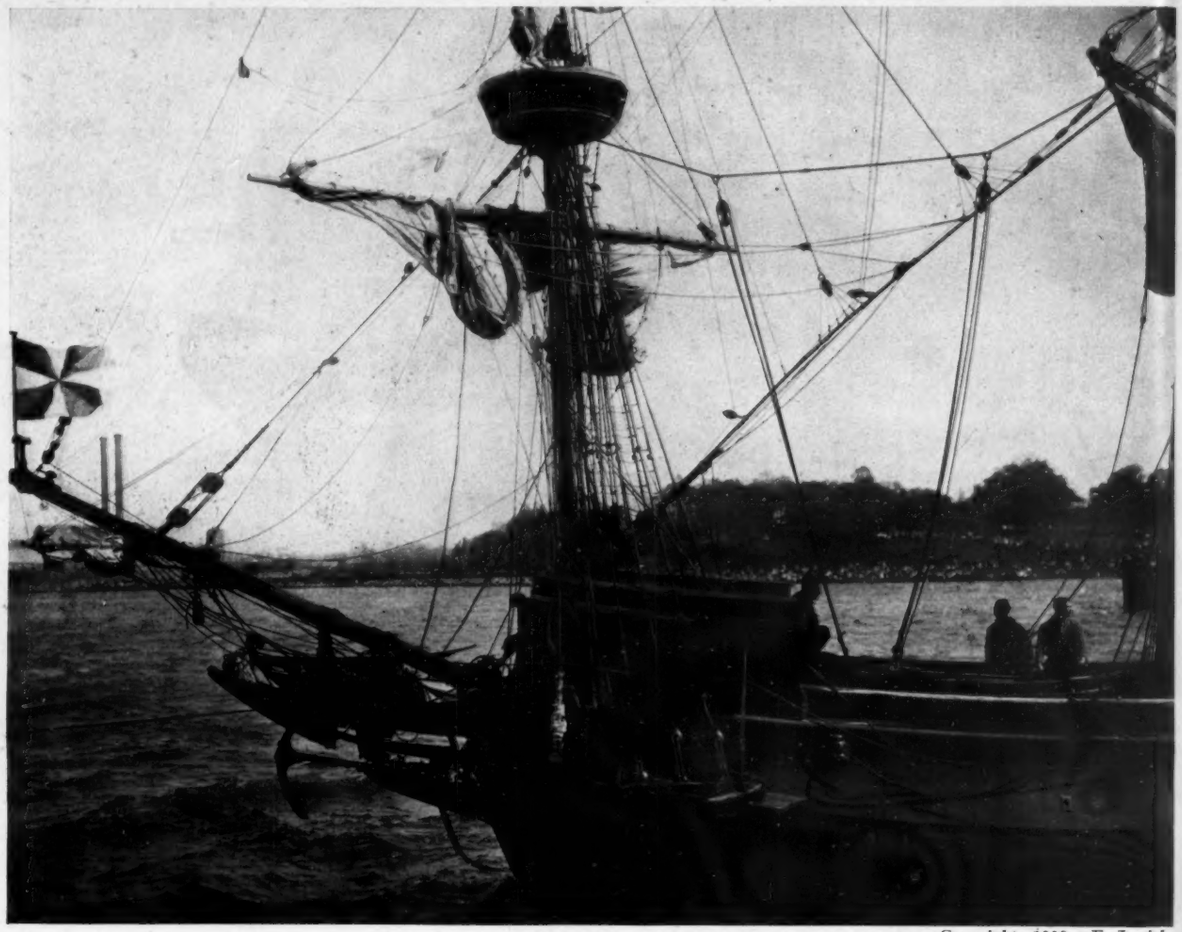
The one and twentieth, faire Sun-shining weather, but much wind and a great Sea. We split our fore saile at ten of the clocke; then we laid it a trie with our mayne sayle, and continued so all day. In the night it fell to be little wind. This day our heigth was 45 degrees 48 minutes.

The two and twentieth very faire Sun-shining weather, and calme all the after-noone. At noone we made a very good observation, and found our heigth 44 degrees 58 minutes. At eight of the clocke at night wee had a small gale of winde at South-east. And wee steered away West for Newfound Land. The true Compasse varied one point East.

The five and twentieth, faire Sun-shining weather, the wind at North North-west and North, we steered away West by South by our Compasse till twelve of the clocke; at which time we had sight of a sayle, and gave her chase, but could not speake with

her. She stood to the Eastward; and we stood after her till sixe of the clocke in the after-noone. Then wee tact to the Westward againe, and stood on our course. It was faire all night, and little wind sometimes.

Some historians believe that it was from the Basque fishermen, who had long been in the custom of crossing the Atlantic each summer to the Grand Banks, that John Cabot secured the information which led to his "discovery" of Newfoundland for the British Crown in 1497. At any rate, the Banks fishery was well known to both French and Portuguese by the time of Hudson's voyage, as appears in the course of the narrative. The reader should not confuse the meaning of the word gale, which in Hudson's day meant a moderate wind, and is so used in the record. The word "storme" was used for what we call a gale.



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DETAIL OF THE FORE RIGGING OF HENRY HUDSON'S FAMOUS HALF MOON

The first of Iuly, close, mystie and thicke weather, but a faire gale of wind at South-west, and South-west by South. We steered away North-west and by West, Westerly, and made our way so, by reason of the variation of the Compasse. At eight of the clocke at night, wee sounded for the Banke of Newfound Land, but could get no ground.

The second, thicke mystie weather, but little wind, and that at West, and West and by South. At eight of the clocke in the morning, we cast about to the Southward, and when our ship was on stayes, we sounded for the Banke, and had ground in thirtie fathoms, white sand and shells, and presently it cleered: and we had a sight of a sayle, but spake not with her. In the night we had much Rayne, Thunder and Lightning, and wind shifting.

The third, faire Sun-shining weather, with a faire gale of wind at East North-east, and wee steered away West South-west by our Compasse, which varyed 17 degrees Westward. This morning we were among a great Fleet of *French*-men which lay Fishing on the Banke; but we spake with none of them. At noone wee found our heighth to bee 43 degrees 41 minutes. And we sounded at ten of the clocke, and had thirtie fathoms gray sand.

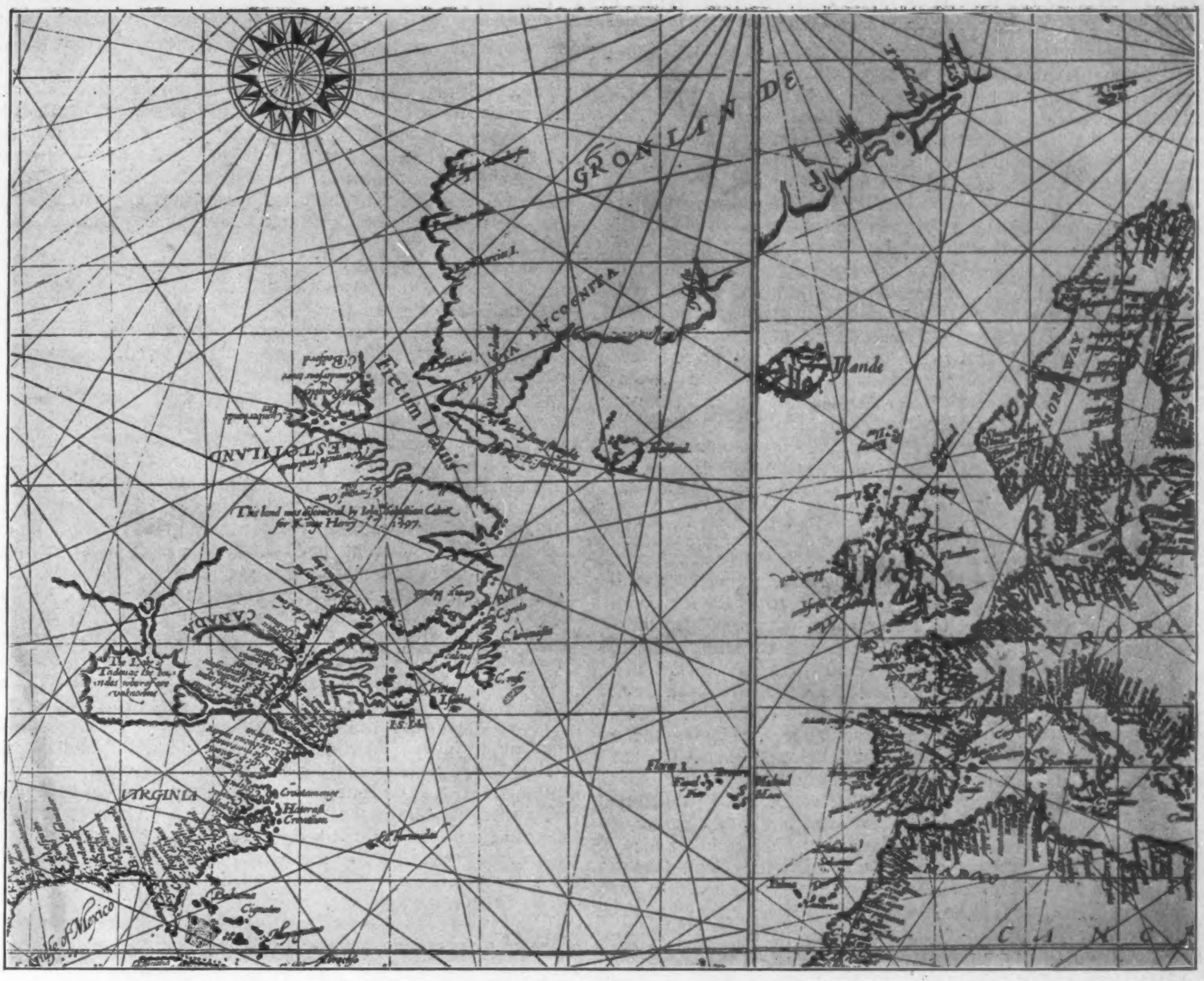
The fourth, at the fore-part of the day cleere with a faire gale of wind, but variable betweene the East North-east, and South and by East, wee held on our course as before. The after-noone was mystie, the wind shifting betweene the South and the West, till foure of the clocke. Then we tooke in our top-sayle and sprit-sayle, and sounded, and had no ground in seventie fathoms. The winde shifted still untill eight of the clocke, then it came to the North Northeast, and North-east and by North, and we steered away West North-west by our varyed Compasse, which made a West way, halfe point North. The Compasse varyed 15 degrees from the North to the West. (That is, the W. N. W. of the compass was W. ½ N., true.)

The eight, in the fore-noone faire weather, but the morning foggie till seven of the clocke. At foure of the clocke in the morning we sounded, and had five and fortie fathoms, fine white sand, and we had runne five leagues South and by West. Then wee stood along one Glasse (hour glass), and went one league, as before. Then we stood one Glasse and sounded, and had sixtie fathoms. Then wee takt and stood backe to the Banke, and had five and twentie fathoms; and tryed for Fish, and it fell calme, and we caught one hundred and eighteene great Coddes, from eight a clocke till one, and after Dinner wee tooke twelve and saw many great scoales of Herrings. Then wee had a gale (good breeze) of wind at South, and it shifted to the West North-west, and we stood three Glasses and sounded and had sixtie fathomes; and stood two Glasses, and had two and fortie fathoms, red stones and shells. So wee sounded every Glasse and had several soundings, 35, 33, 30, 31, 32, 33 and 34 fathoms.

The ninth, faire calme weather, we lay becalmed all day and caught some Fish, but not much, because we had small store of salt. At three of the clocke in the after-noone, wee had a gale at South-east, and South South-east, and we steered away Westerly, our Compasse was West and by South halfe a point South. At foure of the clocke, we sounded and had but fifteene, seventeene, and nineteene fathoms on a fishing Banke; and we sounded every Glasse. Then we could get no ground in five and twentie fathoms, and had sight of a sayle on head off us. At noone our height was 44 degrees 27 minutes. We stood to the Westward all night, and spake with a French-man, which lay Fishing on the Banke of Sablen, in thirtie fathoms, and we saw two or three more.

The "Banke of Sablen" is evidently The Banque aux Sables off the coast of Nova Scotia, so named on old French charts. As they left the Faröe Islands May 31, they were thus thirty-nine days on the passage across to the Nova Scotia coast.

The tenth, very mystie and thicke weather, the wind at South-west, a faire gale. We stood to the South-ward, and made our



AN ORIGINAL MERCATOR CHART OF THE NORTH ATLANTIC OF HUDSON'S TIME

way South-east and by East. At twelve of the clocke we sounded, and had eight and fortie fathoms: againe at two we sounded, and had fiftie fathoms. And at sixe of the clocke we sounded, and had eight and fortie fathoms on the end of the Banke. Againe, at eight of the clocke at night wee sounded, and had no ground in eightie fathoms, and were over the Banke. So wee stood along till mid-night. The Compasse varyed 17 degrees to the Westward.

The twelfth, was very foggie, we stood our course all the morning till eleven of the clocke; at which time we had sight of the Land, which is low white sandie ground, right on head off us; and had ten fathoms. Then we tackt to the Southward, and stood off foure Glasses: then we tackt to the Land againe, thinking to have rode under it, and as wee came neere it, the fog was so thicke that we could not see; so wee stood off againe. From mid-night to two of the clocke, we came sounding in twelve, thirteene, and foureteene fathoms off the shoare. At foure of the clocke, we had 20 fathoms. At eight of the clocke at night 30 fathoms. At twelve of the clocke 65 fathoms, and but little winde, for it deeped apace, but the neerer the shoare the fairer shoalding.

The thirteenth, faire sun-shining weather, from eight of the clocke in the fore-noone all day after, but in the morning it was foggie. Then at eight of the clocke we cast about for the shoare, but could not see it; the wind being at South by our true Compasse, we steered West and by North. At noone we observed, and found our height to bee 43 degrees 25 minutes; so we steered away West and by North all the after-noone. At foure of the clocke in the after-noone we sounded, and had five and thirtie fathoms. And at sixe of the clocke, we had sight of the Land, and saw two sayles on head off us. The land by the waters side is low Land, and white sandie Bankes rising full of little Hils. Our soundings were 35. 33. 30. 28. 32. 37. 33 and 32 fathoms.

This must have been the southwestern coast of Nova Scotia in the vicinity of Cape Sable, where the land is low and sandy. The difficulty with making it Cape Cod becomes apparent as soon as one attempts to reconstruct the subsequent course. Also, it is incredible that the Half Moon could have made the run from the "Banke of Sablen" to Cape Cod in three days under the conditions which prevailed and upon the course given.

The fifteenth, very mystie, the winde varying between South and South-west, wee steered West and by North, and West North-west. In the morning we sounded, and had one hundred fathoms, till foure of the clocke in the after-noone. Then we sounded againe, and had seventie five fathoms. Then in two Glasses running, which was not above two English miles, we sounded and had sixtie fathoms, and it shoalded a great pace untill we came to twentie fathoms. Then we made account: we were neere the Ilands that lie off the shoare. So we came to an Anchor, the Sea being very smooth and little wind, at nine of the clocke at night. After supper, we tryed for Fish, and I caught fifteene Cods, some the greatest that I have seene, and so we rode all night.

The sixteenth, in the morning it cleered up, and wee had sight of five Ilands lying North, and North and by West from us two

leagues. Then wee made ready to set sayle, but the myst came so thicke we durst not enter in among them.

The seventeenth, was all mystie, so that wee could not get into the Harbour. At ten of the clocke two Boates came off to us, with sixe of the Savages of the Countrey, seeming glad of our comming. We gave them trifles, and they eate and dranke with us; and told us, that there were Gold, Silver and Copper mynes hard by us; and that the French-men doe Trade with them; which is very likely, for one of them spake some words of French. So wee rode still all day and all night, the weather continuing mystie.

The eighteenth, faire weather; wee went into a very good Harbour, and rode hard by the shoare in foure fathoms water. The River runneth up a great way, but there is but two fathoms hard by us. We went on shoare and cut us a fore Mast, then at noone we came aboord againe, and found the height of the place to bee in 44 degrees 1 minute; and the Sunne to fall at a South South-west Sunne. (The sun set at W. S. W.?) We mended our sayles, and fell to make our fore-Mast. The Harbour lyeth South and North, a mile in where we rode.

The latitude is that of Penobscot Bay, Maine, with which location the description of the coast well agrees. After leaving the "Banke of Sablen" the Half Moon drew in on the southwestern part of Nova Scotia coast, and, having made the land near Cape Sable, stood out to sea again, passed through the shoal water and tide rips off Cape Sable Island, and stood up N. W. for what is now the coast of Maine.

The nineteenth, we had faire sun-shining weather, we rode still. In the after-noone wee went with our Boate to looke for fresh water, and found some; and found a shoald with many Lobsters on it, and caught one and thirtie. The people comming aboord, shewed us great friendship, but we could not trust them. The twentieth, faire sunne-shining weather, the winde at South-west. In the morning, our Scute went out to catch fresh Fish halfe an houre before day. And returned in two houres, bringing seven and twentie great Coddes, with two hookes and lines. In the after-noone wee went for more Lobsters, and caught fortie, and returned aboord. Then wee espied two French Shallops full of the Countrey people come into the Harbour, but they offered us no wrong, seeing we stood upon our guard. They brought many Beaver skinnes, and other fine Furres, which they would have changed for redde Gownes. For the French trade with them for red Cassockes, Knives, Hatchets, Copper Kettles, Trevits, Beades and other trifles.

The three and twentieth, faire sun-shining weather and very hot. At eleven of the clock our fore Mast was finished, and we brought it aboord and set it into the step, and in the after-noone we rigged it. This night we had some little myst and rayne.

The foure and twentieth, very hot weather, the winde at South out of the sea. The fore-part of the day wee brought to our sayles. In the morning our Scute went to take Fish, and in two houres they brought with them twentie great Coddes and a great Holibut; the night was faire also. We kept good watch for feare of being betrayed by the people, and perceived where they layd their Shallops.

The five and twentieth, very faire weather and hot. In the morning wee manned our Scute with foure Muskets and sixe men, and tooke one of their Shallops and brought it aboord. Then we manned our Boat and Scute with twelve men and Muskets and two stone Pieces or Murderers, and drave the Savages from their Houses, and tooke the spoyle of them, *as they would have done of us.* (?) Then wee set sayle, and came downe to the Harbour's mouth, and rode there all night because the winde blew right in, and the night grew mystie with much rayne till mid-night. Then it fell calme, and the wind came off the Land at West North-west, and it began to cleere. The Compasse varyed 10 degrees Northwest.

The sixe and twentieth, faire and cleere sunne-shining weather. At five of the clocke in the morning the winde being off the shoare at North North-west we set sayle and came to sea, and by noone we counted our ship had gone fourteene leagues South-west. In the after-noone the winde shifted variably betweene West South-west and North-west. At noone I found the height to bee 43 degrees 56 minutes. This Evening being very faire weather, wee observed the variation of our Compasse at the Sunne's going downe, and found it to bee 10 degrees from the North to the Westward.

The seven and twentieth, faire sun-shining weather, the winde shifting betweene the South-west, and West and by North, a stiffe gale, we stood to the Southward all day, and made our way South and by West seven and twentie leagues. At noone our height was 42 degrees 50 minutes. At foure of the clocke in the after-noone wee cast about to the Northward. At eight of the clocke, we tooke in our top-sayles and our fore-bonnet, and went with a short sayle all night.

The nine and twentieth, faire weather, we stood to the Southward, and made our way South and by West a point South, eighteene leagues. At noone, we found our height to bee 42 degrees 56 minutes; wee sounded oft, and had these: 60. 64, 65. 67. 65. 65. 70 and 75 fathoms. At night we tryed the variation of our Compasse by the setting of the Sunne and found that it went downe 37 degrees to the North-ward of the West, and should have gone downe but 31 degrees. The Compasse varyed 5 and a halfe degrees.

The thirtieth, very hot, all the fore-part of the day calme, the wind at South South-east, wee steered away West South-west and sounded many times, and could find no ground at one hundred and seventie fathomes. We found a great current and many over-falls. Our current had deceived us. For at noone we found our height to be 41 degrees 34 minutes. And the current had heaved us to the Southward foureteen leagues. At eight of the clocke at night I sounded and had ground in fiftie two fathomes. In the end of the mid-night watch, wee had fiftie three fathomes. This last observation is not to be trusted.

The one and thirtieth, very thicke and mystie all day, untill tenne of the clocke. At night the wind came to the South, and South-west and South. We made our way West North-west nineteene leagues. Wee sounded many times, and had difference of soundings, sometimes little stones, and sometimes grosse gray sand, fiftie sixe, fiftie foure, fortie eight, fortie seven, fortie foure, fortie sixe, fiftie fathomes; and at eight of the clocke at night it fell calme, and we had fiftie fathomes. And at ten of the clocke we heard a great Rut, like the Rut of the shoare. Then mistrusting a current, seeing it so still that the ship made no way, I let the lead lie on the ground, and found a tide set to the South-west and South-west by West so fast that I could hardly vere the Line so fast, and presently came an hurling current, or tyde with over-fals, which cast our ship round; and the Lead was so fast in the ground that I feared the Lines breaking, and we had no more but that. At mid-night I sounded againe and we had seventie five fathomes; and the strong streame had left us.

The first of August, all the fore-part of the day was mystie, and at noone it cleered up. We found that our height was 41 degrees 45 minutes, and we had gone nineteene leagues. The after-noone was reasonable cleere. We found a rustling tide or current, with many over-fals to continue still, and our water to change colour, and our sea to bee very deepe, for wee found no ground in one hundred fathomes. The night was cleere, and the winde came to the North, and North North-east, we steered West.

The third, very hot weather. In the morning we had sight of the Land, and steered in with it, thinking to goe to the Northward of it. So we sent our shallop with five men to sound in by the shore; and we found it deepe five fathomes within a Bow-shot of the shoare; and they went on Land, and found goodly Grapes, and Rose trees, and brought them aboord with them, at five of the clocke in the Evening. We had seven and twentie fathomes within two miles of the shoare; and we found a floud come from the South-east, and an ebbe from the Northwest, with a very strong streame, and a great hurling and noyses. (Race Point?) At eight of the clocke at night, the wind began to blow a fresh gale, and continued all night, but variable. Our sounding that wee had to the Land, was one hundred, eightie, seventie foure, fiftie two, fortie sixe, twentie nine, twentie seven, twentie foure, nineteene, seventeene, sometimes Oze and sometimes gray sand.

This was evidently the back side of Cape Cod. They cruised along the beach from Race Point to Monomoy, meeting the strong tides that run here.

(To be continued.)

From Nassau to New York in an Auxiliary Catboat

By ALFRED JOHNSON

THE LIGHTHOUSE AT PONCE PARK, MOSQUITO INLET

TO describe in detail my four weeks' voyage from Nassau to New York of approximately 1,500 miles, following nearly the whole length of our Atlantic coast line, in an auxiliary catboat, during the early spring of this, an unusually windy, stormy and disastrous year, with a Swede sailor as sole companion, would, I imagine, make a respectable sized book of travel and adventure.

For instance, what I learned from it of the ways of catboats and of small, internal-combustion gasolene engines of the two-cycle variety, in all weathers and in all waters, from canals, rivers, sounds and bays to the open ocean, would require a number of chapters.

My object, however, is not to try to write a book. I wish merely to record briefly some of the incidents and impressions of the trip which seem most vividly to have remained in my mind, now that I am North again, and, at the same time, to give such advice and helpful suggestions from my personal and recent experience as might be of use to any small-boat sailors who contemplate going South in their own craft.

And I would strongly urge and encourage any man who loves the water and who likes to sail a boat, run an engine and work a chart to take the same trip. My boat was not the best kind for it; but in a suitable craft, well found, it would be a pleasure, as the fall of the year comes on, to run down into summer weather and escape our cold winter.

The Myrtle, in which I made the trip, is a centerboard Cape Cod catboat of a type that has become famous; she is 35 feet long, 14 feet wide, draws 3½ feet of water, with 5 feet freeboard forward and 2½ feet aft. Mr. Daniel Bacon, her owner, had used her for two winters, as a ferry for himself and his friends, between Nassau and Long Key, an island three miles distant, which he owned. With her great, full, rounding cheeks at the bows, she looked, and behaved in a seaway, more like a huge tub than a boat. Her mast, a big stick, 45 feet long, made people afraid of her; but she lugged it all right, especially after 10 feet were cut off her boom before starting. Unusually light and buoyant, she is as dry as a ship, for her builder—Crosby, of Osterville, Cape Cod—is a man of experience, and knows what he is doing when he turns out a catboat; and I veritably believe she is about the ablest thing I ever happened to sail on of her inches. But slow! With her bluff bows it was absolutely impossible, even under full mainsail, before a fresh breeze, with the 14 horsepower Lathrop engine going wide open, to drive her beyond a certain speed. The best we ever got out of her under the above conditions on smooth water in Chesapeake Bay, with everything favorable, was a trifle better than 6 knots per hour, and outside in a seaway I felt happy when she was making 4½ to the good on her course. The engine alone, when the sail was furled, would keep her bow headed into a heavy sea during a breeze of wind, but would not drive her ahead into it perceptibly. But, as I say, she was light as a cork, and so beamy you couldn't lay her over on her side, and she was always dry as a bone. Solid water came over both bows at the same time upon several occasions, but never did we even get heavy spray back in the cockpit, except when crossing bars; and this was fortunate, for she had a cockpit big enough to hold a prayer-meeting in (10 x 11), and the first time I saw it I thought of Dr. Winslow, of the Pilgrim, and how he used to hate large, open cockpits. They have their uses, however, and we made ourselves very comfortable in ours—living and even sleeping in it most of the time in the Southern latitudes.

"THE MYRTLE WAS AN AUXILIARY CENTERBOARD CAPE COD CATBOAT"

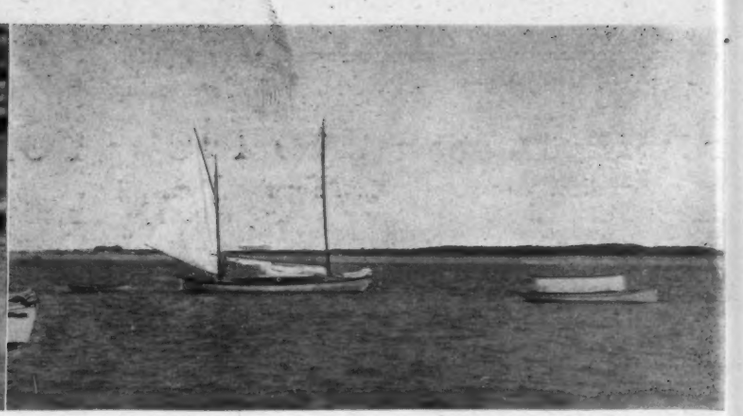
This arrangement was very convenient when it was necessary to "call all hands" to shorten the sail, the man who happened to be at the wheel simply having to reach out and dig the sleeper in the ribs. There wasn't much time required for his toilet, either, for we went bare-headed and bare-footed until we got north of Hatteras.

We turned our 11-foot tender upside down over one side of the cockpit, lashing the awning securely alongside to keep out the tropical rains, and put leather cushions on the floor to lie on. This made a fine place also for stowing 5-gallon cans of extra gasolene and fresh provisions, and when we left Miami we had two bunches of green bananas, 150 in a bunch, suspended under it. These we ate as they ripened, having laid in also a good supply of cocoanuts, pineapples, lemons, sapadillos, pawpaws, cumquots, new potatoes, both sweet and white, cabbages and tomatoes. Then, too, we had half a dozen chickens in a coop, whose numbers were gradually depleted when we hadn't time to fish, or were not near a weir or nets, as we constantly were later in Pamlico and Albermarle Sounds and in Chesapeake and Delaware Bays. The look of the cock as he awoke on the last morning of his life, alone, was pathetic.

The best things the Swede did were to cook and scrub, so I didn't discourage him at all in his culinary efforts. He had been on whaling trips and similar long voyages, and when other things failed and the weather admitted it he could throw together wonderful dishes, such as lobscouse, plum-duff and green pepper hash. Before going further with my description of the Myrtle and her equipment, it may not be out of place to give some idea of what my sole companion was like.

Strongly built, well set up, a clear blue eye, curly yellowish hair, and in perfect health, my Swede companion was a curious product of the sea. By his own account, kicked out of his home when a young boy for quarrelsomeness, and with no desire ever

ONE OF THE SUNDAY FISHING PARTIES AT NASSAU



TYPICAL BAHAMIAN BOAT. THIS ONE HAD MADE THE TRIP TO CUBA

to return, he had fought his way in all kinds of ships ever since—never getting out of the forecastle. Quick and active as a cat, he was a tireless worker and good sailorman, when in good humor and sober. But he had secreted about the boat a large supply of Irish whiskey, bought at Nassau for something like 60 cents per quart, and when saturated with this he was neither a useful member of the crew nor an agreeable companion. In fact, he would go into taciturn spells, during which for days he would scarcely speak a word.

When in one of his spells he would never reef the sail or call me when I was asleep until we were nearly on our beam-ends, and then it would be so late that both of us would have to make herculean efforts to get out of the absolutely needless scrape into which his bravado and lack of foresight and imagination had gotten us. He was the most perfect example of that pitiful object, "energy without insight," that I have ever seen. On his whaling voyages, under the direction of a strict second mate, on the other hand, he was, perhaps, easily the best man on board. And reckless, insolent dare-devil that he was, there was, at that, no better man available in Nassau. He was infinitely superior to the Nassau niggers, who are lost when they cannot determine their position by looking at the bottom over the boat's side, their favorite method, in fact, everywhere on the Bahama Banks.

"Captain Charlie," as my Swedish Caliban delighted to be called, would, on the other hand—I have no doubt—have started North in our 11-foot cypress tender alone had anyone told him that he didn't dare to, though, owing to constant exposure to the tropical sun and many landings on Long Key coral strand, she was pretty well stove up, and leaked like a sieve even before we started. In fact, she would barely carry both of us at one time from our anchorages to the shore without filling up to the thwarts.

The Myrtle's equipment was not all that it should have been, for we had no weather glass or barometer, no patent log, no lead line, and no marine glasses worthy of the name. There was an old pair of binoculars aboard, but Charlie began by jumping from the top of the house to the cockpit floor onto them, completely flattening out one barrel and leaving the other in such condition that it was about as useful as a stereoscope.

Our compass was a constant source of trouble and uncertainty. It was placed in a binnacle forward of the wheel and directly behind the engine, which was located in the lazarette under the cockpit floor and covered by two large hatches, which were usually left open, to get good combustion. When we were heading directly north it was quite reliable, though it was then almost a half point off, the deviation being by the north star about one-half point easterly; but when we departed from a northerly course it acted most erratically, and after passing the quadrantal points could not be trusted on long runs at all, developing then an undetermined semi-circular deviation, being attracted by the metal of the engine.

I had always intended "to swing ship," and try my hand at compensating it with red and blue magnets, and make out a deviation table when a proper opportunity presented itself; but the circumstances never seemed to be favorable, and we reached home before I got around to determining and tabulating the various errors.

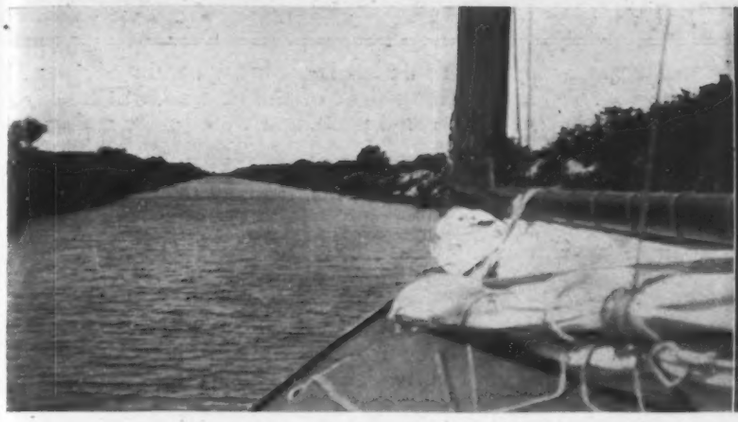
On the run from Jacksonville to Charleston, 200-odd miles, when our course at times was almost a quadrantal one, we found ourselves 20 miles out of our reckoning, through unreliability of the compass, when we made land.

Such was the boat and such the companion with whom I cast my lot when I started out from Nassau on the 30th of March, 1912, on our 1,500-mile voyage to New York. The run to Miami, Florida, was absolutely uneventful, and Myrtle, from her slight draft, was able to shorten up the route taken by Captain White's steamer, the Miami, some 30-odd miles, the latter being obliged to run up around The Great Stirrup Key and The Great Isaac, while Myrtle could cut across, seeing bottom for miles. She had a fine, "smooth chance" over, with a fair, moderate breeze all the way, and was forced to use the engine only in the last 40 miles, while bucking the Stream. The principal incidents of the trip were the visits of flying fish, which flopped into the cockpit over the low rail in their playful flights of 200 yards or so in schools of from two to a dozen. She made the run of 170-odd miles in about 60 hours—i. e., being at sea from 5 o'clock Saturday afternoon until 5 o'clock Tuesday morning, and was obliged to go through as much red tape at the United States custom house at Miami and with the port physician as any "real" ship arriving from a foreign port. This was greatly expedited, however, by the kind offices of Captain White, whose nautical and eagle eye had recognized her as far as she could be seen, though other seamen on the dock who had seen her at Nassau often were willing to wager it wasn't the Myrtle, so small did she look coming in from sea.

A PICTURESQUE CONCH FISHERMAN OF NASSAU

A more or less detailed account of some of the places stopped at and the people I met in them may be of interest.

Miami (pronounced by the residents My-ammer), beautifully situated on Bay Biscayne, interested me very much, and convinced me that one need not necessarily go into the west to find young, hustling towns. Fifteen years ago, I was told, there was very little here besides a fort on the bay and a sort



ON THE CANAL NORTH OF MOSQUITO INLET

ENTERING THE CANAL AT MOSQUITO INLET

of trading post for the Seminole Indians, who still come to town, men and women clad nearly alike in variegated calico blouses, and skirts which they roll up, leaving their legs bare for the amphibious life they lead in the Everglades. They are a fine, self-supporting race of Indians, many of them having bank accounts in Miami, where they come to sell their fish, game and aigrettes, all to one man, who acts as sort of agent for them. What they will do when the Everglades, their hunting ground and their home, are drained, seems to be as yet an unsolved problem.

I spent upwards of two weeks there, where I happened to have a number of friends both among the winter colony and the permanent residents, and I had as good an opportunity to see the place as a passing traveler can, and was much impressed with it. The yacht club, pleasantly situated out over the water, and to whose float even the Everglade, of 257 tons, can run up and make fast, is a live and, at the same time, fashionable organization.

I was much impressed with the work of draining the Everglades back of Miami, and went up in a power boat to where the dredger was at work.

Miami is already surrounded by prosperous truck farms, and if this much-mooted scheme is a success there would seem to be no end to the opportunities for extending them. One thing with which these growers have to contend is the high freight rates, and I don't see why some enterprising people haven't started a boat line, with feeders to pick the fruit and produce up, and then ship it in a good-sized freighter to New York. For the same reason all goods brought to Miami are high. The climate admits of many economies, however; for instance, on entering one of the large shops on Twelfth Street, I was struck by the great piles of overalls and khaki suits, and I learned from the proprietor that he sold them by the gross; for in this climate people need very few clothes, and if the year was a bad one the man got no "good clothes," economizing by wearing nothing but overalls and shirt throughout the four seasons.

I have often been asked since returning if we encountered any rough weather or storms. We did. As a matter of fact, we had not sailed twelve hours from Miami before we got caught in a heavy "Norther," of which we encountered several this unusually cold and late spring. This one burst upon us with such squalls that we couldn't make headway against them, close-hauled, even after putting three reefs in the mainsail and keeping the engine going full speed to hold her up. The nearest apology for a harbor of refuge within one hundred and fifty miles was New River Inlet; so, towards the end of the afternoon we reluctantly decided to give it up, and, putting her about, headed south to find the break in the continuous line of surf which should mark its entrance. Then going below to consult the U. S. Coast Pilot, Part VII, in regard to this harbor, I found the following: "The depth on the bar under favorable conditions is about 4 feet; it requires local knowledge and a smooth sea to cross the bar, and it should not be attempted by a stranger."

Now the conditions could hardly be less favorable, for the tide was low and the sea was anything but smooth, and the surf apparently breaking all the way across the bar; but it was either go in here or on the beach, for the little boat couldn't stand up and look at it long enough between the squalls to work off the coast, and when the gusts came she shot off sideways toward the breakers; in fact, what else could you expect of a boat in such a hard chance, with 5½ feet of freeboard forward and drawing only 3½ feet of water aft?

I took a good look at the breakers and studied the trend of the bar as we approached it, and after some rapid calculations decided that, having lived in the surf every morning for the past six weeks at Nassau, and been well coached in the peculiarities of Southern bars before starting by Captain White, and remembering, too, that they nearly always open to the southward, and often have, in addition, a small swash channel to the northward, I decided that if the Myrtle broke up I stood a pretty good chance of being able to swim through the breakers into the smooth waters beyond. I looked at one of the life-preservers in the lazarette under my feet, but made up my mind that the cumbersome thing would be more of a hindrance for quick action than a help; in fact, the same chance had been taken, as I knew, shortly before at Mosquito Inlet, where a small oil-carrying steamer broke up on that bar. Two young men of the crew swam to shore, leaving the captain and a deck-hand, both old men, clinging to the mast, to drown when it should fall as the stranded craft went to pieces.

PATH LEADING FROM PONCE PARK P. O. TO MOSQUITO INLET LIGHTHOUSE

While I was thus deciding what to do if necessary, and was about to explain it to the Swede, my attention was attracted by a human figure, a rare sight on these beaches, running toward the end of the northern sandspit. It was a woman, frantically waving a red shawl. I brought the boat up into the wind to watch her. Soon, reaching the end of the sandspit, she kept waving the shawl and pointing her arms to the south. With the help of the glass I could make out in the gathering twilight, through the

spume and spray of the breakers, a small power-dory, bobbing up and down, with one man standing swaying in the bow, gradually working its way to windward and getting out of the inner harbor. We understood at once that he was trying to indicate to us the location of the channel into the harbor. Consequently, we ran down opposite him, the breakers always between us. Soon we were not more than 200 yards apart, but between us still was a seething cauldron.

Then he turned his course sharply from east to south, motioning with his hat for us to do likewise. Next, arriving opposite the point, at the southern opening, where the water on the bar was deepest, he quickly swung back toward the shore and to the northward again, beckoning with his hat for us to follow. The Swede was forward on lookout, his arm around the mast to keep him from being rolled or slatted overboard, his blue eyes fixed on the dory, and his energies bent on keeping the butt end of his unlighted T. D. clay pipe clinched in the aperture left by a conveniently located broken front tooth. I stood by the wheel. I let the sheet go by the run and yelled to the Swede to pull up the centerboard, and then, with engine going, we flew down a comparatively smooth mill-race of seething water fenced in by tumbling walls of breakers 10 feet high and 100-odd feet away on each side of us. At first we shot in finely, going faster than the following seas; but, as we approached the shallows (less than 4 feet deep, while we were drawing 3½ aft), we got it badly in the short, choppy seas of the disturbed water, and then after our bows had dropped suddenly from under us several times, until I thought we would turn a somersault, we struck! The seas, breaking over our square stern, sent spray flying halfway up the mast and shooting down the cabin door, which I couldn't leave the wheel to shut, in such quantities that my shore clothes, locked in a steamer trunk on the transom in the forward end of the cabin, were, as I found next day, wet through.

We struck; but we did not stick, or even turn sideways. The next sea picked us up and shot us on further over the bar, on the vicious, swirling in-tow, only to let us down again on the sandbar, hard. I thought Myrtle's forefoot would break as she came down on it, and I instinctively glanced from the wheel down the companionway to see if I could catch sight of any white sand or water coming up through the bottom. In the meantime, as if they were waiting for us, a half-dozen man-eating sharks were sporting about in the waves and shooting along beside us in the breaking crests, with their white bellies gleaming as they turned to look at Myrtle and her crew.

CAPT. E. S. COUTANT, IN CHARGE OF LIFE-SAVING STATION AND HOUSE OF REFUGE, MOSQUITO INLET LAGOON

So fast does the human mind work in such cases, that I recall now thinking how much their relative position in the clear water alongside of us (at times quite as high, or higher, than our rail) resembled that of those I had studied leisurely through the glass sides of an aquarium somewhere, possibly in Bermuda, and wondering if these were of the same species.

And all the while I was bracing myself with both bare feet wide apart, and working the wheel with all the agility and strength there was in me, anticipating her tendency to yaw and trying to keep her from broaching-to and rolling over, and at the same time to follow the general direction of the man in the power-dory, who had not, of course, attempted to run all the way out to us, but after coming as far as he dared had indicated with his arms and hat the general northerly trend of the channel.

We may have been three minutes going through the worst of it, and we may have been fifteen. I shall never know exactly; but finally we were in comparatively smooth water, and as the dory came alongside the man in her shouted: "Don't never do that again, sonny! This harbor is closing up, and that's what I'm here for!" Then catching sight of the letters U. S. L. S. S. on his boat's bow, I understood it all, and went to the rail to thank him.

The life-saver, to my astonishment, was a frail, consumptive-looking specimen who came to Florida, doubtless, like many others, "for his health." He had nothing on but the proverbial pair of khaki trousers; his face was blue and his teeth were chattering, for the "Northers" blow both cold air and water to the Florida coast in the early spring. He had a good headpiece, however, and was the right man in the right place that day. After one glance at his shivering form I dove into the cabin and came up with a bottle of Irish whiskey Captain White had given me on our departure.

"No, thanks," he said, "I don't take nothin' on duty." A bit taken aback, but moved by an impulse of gratitude, I drew a five-dollar bill out of my pocket and held it out to him. He only shook his head, with "No, the government pays me"; and, without further parley, he went on, leading the way through channels that turned and twisted between sandbars, and tree trunks with long roots that had floated down from the lumber camp at New River and sunk, their bleached roots sticking up in the twilight like ghosts. Finally, we reached the anchorage off the "House of Refuge," where his wife was waiting for us on the boat landing, her red shawl now held down tightly on her head in the fresh breeze that was blowing even down here in the lee of the sand dunes; and later, when I loaded up the children, a handful of scantily-clad, bare-legged boys and girls who came to gaze at us bashfully, with Nassauvian fruit from under our tender, he looked on with disapproval, saying, "That ain't necessary, you know."

It seems that the government, in lieu of life-saving stations along the Florida coast, maintains these "Houses of Refuge," manned by one man only, who, with his family, makes his home in them. Their duties are to assist persons and vessels in distress in every way they can, with food, shelter, etc., and to report wrecks to the nearest settlement by telephone, where they have one; but without a crew they are never obliged, unless they wish, to go out to a vessel or go into the water in any way, for the government supplies these stations with neither boat, gun, nor crew. They render valuable service, however, and their wives and children take a willing hand at it, as I can testify from personal experience.

This, our rescuer's name, was J. B. Vreeland, captain of the U. S. L. S. S. at Fort Lauderdale, and I wish to give him a good, long white mark right here.

Another lone life-saver whom I would like to say a few words about is Captain E. S. Coutant, of Oak Hill, Florida, in charge of Mosquito Lagoon, U. S. L. S. S., whom I got to know later when we were blown by a gale into the cove where his picturesque gray-shingled little "House of Refuge," with its red awnings and morning glories on the porch, is perched halfway up the sand dune. He has an enviable record, extending over thirty years, for pulling people, both dead and alive, out of the surf, and his wife is a close second to him. She was in charge when we blew in, having practically lost our way in the rain and mist, and being thoroughly soaked with the flying spray of the gale, which kicked up a nasty sea in the imposingly large but shallow lagoon, 20-odd miles long. The captain was away on his weekly absence across the wide lagoon to get supplies at "Oak Hill." She was on the lookout for trouble, however, for she seemed to think the work as much her business as his. In fact, some years ago together

they picked up the body of Captain Hawthorne, of Portland, Me., when the General Whitney, of the Metropolitan Line, was lost off their station. Between them they hauled twelve bodies out of the wreck ashore through the surf, and she got that of an oiler and one other later, alone. Together, though now old people, they still patrol the beach after every storm.

Captain Coutant would resign, but is hanging on in the hope that Congress will pass a pension bill for superannuated lifesavers; for with the increased cost of living and the expense of raising and educating a family, he hasn't seen his way clear to laying very much by to retire on unaided. May such a bill be passed, and soon, say I, for one!

(To be continued.)

Laying Up the Engine for the Winter

What to do to Put a Marine Engine in Proper Shape to Keep it From Deteriorating During the Cold Weather

By H. S. LAWRENCE

WHEN the cold weather of the late fall is on us, and we haul our motor boat out for her winter's rest about the time the first snow flies, there is a strong tendency to leave the engine in just the condition it is without doing any more work upon it than is absolutely necessary. This, however, is a particularly bad thing to do, and is one that is apt to cause much additional work and expense in the spring, to say nothing of permanent harm done to the motor by deterioration. Much the better way is to spend a little time in the fall to properly "lay up" the motor.

The winter, of course, is the proper time to overhaul the engine, and this can best be started at hauling-out time, so that any work that is necessary may be done thoroughly during the winter without crowding it all in in the spring, when yards and machine shops are busy and the work is sure to be slighted. It is not, of course, *necessary* to do this work in the fall, though it is advisable; but if it is not done certain precautions should be taken to keep the engine from deteriorating and to insure its being in fair condition the following spring.

First of all, the drain cocks of the water circulating system should be opened, so as to drain off every bit of water from the water-jackets and pipes. It should be borne in mind that the piping must be drained as well as the jacket. To do this it is often necessary to supply an air vent at the highest part by opening a pet cock or breaking a joint in the pipe. This is necessary, as it is frequently thought that the jacket is empty when it is really half full of water because a proper air vent is not supplied. There are also apt to be shallow pockets in the base of the water jacket which it is impossible to drain, and these should be dried out by running the engine several minutes after the jacket is drained, with the sea cocks closed, thus allowing the heat to evaporate any water left in these pockets. Also drain the muffler, if it is water cooled and has any place where water will collect in it.

In order to prevent the piston rings from sticking in their grooves during the off-season by becoming gummed or carbonized, which will result in the loss of compression the next year on account of the rings losing their elasticity, it is advisable to thoroughly clean the cylinders and pistons. This can be done by using a carbon remover, of which there are a number of good makes on the market. If the engine is a multi-cylinder one, this can be done while it is running by cleaning one cylinder at a time, inserting the remover through the spark plug opening.

If the engine has but one cylinder, remove the spark plug and with a squirt-gun or a long-necked oil can squirt the carbon remover around the walls of the cylinder and on top of the piston. Repeat this two or three times, cranking the engine each time. Kerosene will answer this purpose if carbon remover is not at hand. Finally, draw this off from the base of the engine and give it a dose of gasolene to remove the kerosene, and draw off in the same way. Then put into each cylinder about half a pint of good quality cylinder oil, which can be poured in through spark plug holes, or by removing valve caps, and crank the motor ten or a dozen times to distribute this oil thoroughly on the cylinders, piston and valves. Plug up all the openings, and when spring comes you will find your cylinders in good condition.

Also look after your oiling system thoroughly, and see that the pipes are clear and running free; also that they are not running too fast, as excessive oil makes a carbon deposit very quickly. While you are working on this part of the engine it is well to look carefully at your bearings, so that if any of them are worn or loose new ones can be ordered in plenty of time. Examine the connecting-rod bearings carefully and see if they need tightening or new wrist pins or bushings. The adjustment of the crankshaft bearings should also be tested at this time, and if any new parts are needed they should be noted and ordered.

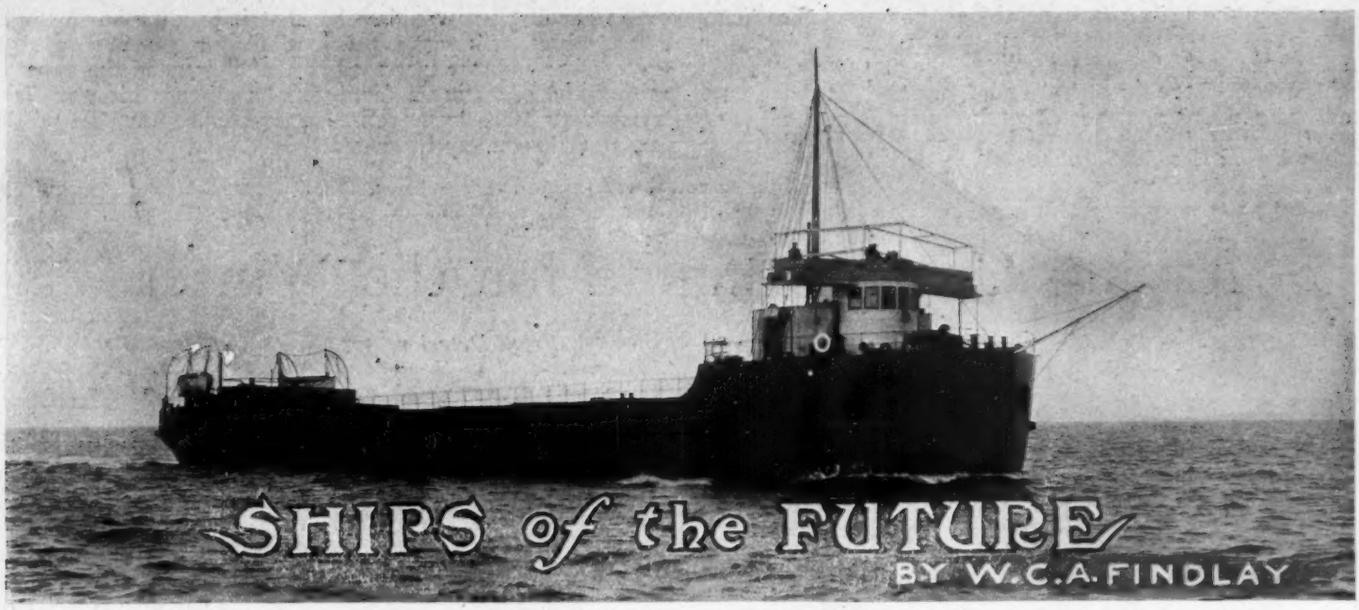
All batteries should be disconnected and taken out of the boat, and battery wires should be disconnected from terminals. To prevent verdigris from forming and to prevent the terminal screws from sticking, rub a little grease on the screw threads so that they may be easily unscrewed in the spring. Vaseline will answer very well for this purpose. If you have a storage battery, be sure to take it out and store it in a place where it will not freeze, as freezing will ruin the battery. To keep a battery in condition the accumulator cell should be fully "discharged" and then recharged at a moderately slow rate, that all free sulphate may be reclaimed by the plates. Spark coils should be kept dry, and, if the boat is not stored under cover, had best be removed.

All exposed bright-work, valves and working parts should be given a heavy coat of tallow, grease or vaseline to keep them from rusting, and all openings into the engine should be closed to protect from dirt and dampness. If brass work is polished and then given a coat of vaseline it will be in good condition in the spring.

It is also a good plan to empty the gasolene tanks, principally to prevent any danger from fire, leakage, etc., as the keeping of gasolene on board during the storage months might vitiate the insurance in case of fire.

It is a good plan to clean out the water-jacket at least every year, to remove all dirt and scale that may form from rusting, and it is a good plan to do this in the fall, particularly if any of the cylinders have been running hot during the latter part of the season. It can be done in the following way: Make a solution composed of one pound of concentrated lye to about 10 gallons of fresh water, and when the boat has been hauled out place this in a pail under the water intake opening, running a small length of hose or pipe from the intake to the pail. Also pipe the water outlet back to the pail with a length of rubber hose, and then run the engine for ten or fifteen minutes, pumping the lye water through the jacket. Afterwards repeat the operation with fresh water, so as to wash the lye thoroughly from the jackets, which will then be as clean as new.

When all this is done a coat of paint on the cylinders will not be amiss, to prevent any rust that may start during the winter in places where paint has been chipped or worn off. The engine will then be in good condition for next year, so that the spring overhaul will not require much except looking after bearings, wrist pins, etc., and giving it a good wiping.



SHIPS of the FUTURE

BY W. C. A. FINDLAY

THE 3,000-TON MOTOR CARGO VESSEL TOILER, BUILT IN ENGLAND FOR USE ON THE CANADIAN LAKES

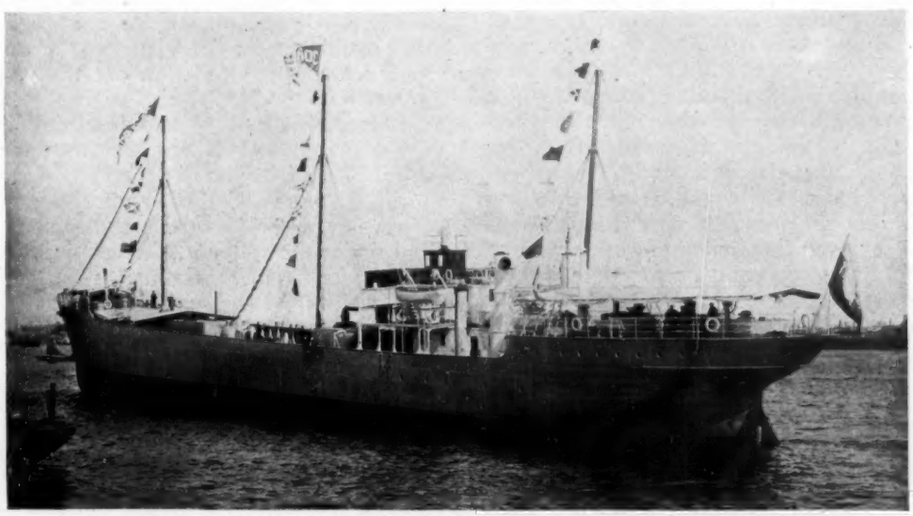
The Part that the Heavy Oil Engine is Playing in the Metamorphosing of the Commercial Fleet

IN England practically every marine engineering firm of repute, if not actually building marine oil engines, is at least seriously considering the advantages that are to be reaped by so doing. English shipbuilders in the past have done very little in this field of marine propulsion for commercial craft, but it is now gratifying to note that Diesel oil-engined ships up to 10,000 tons are being constructed.

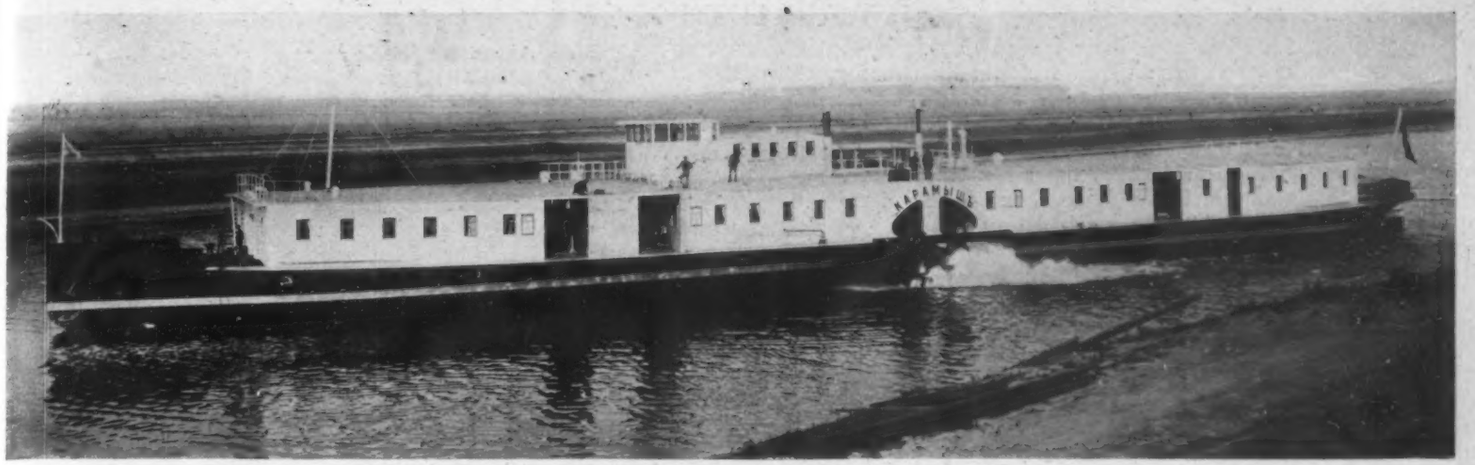
There are two classes of oil engines—light and heavy. Of the heavy type of oil engine the Diesel has proved beyond a doubt that it is the engine of the future, by reason of its economy of operation and the very large sizes in which it is now being built. According to Dr. Diesel, the inventor, the first marine Diesel engine, of 20 horsepower, was constructed in France in 1902-03 for use in a canal boat. That engine operated on a four-stroke cycle, and in service worked very satisfactorily. Since then the marine Diesel engine has gradually developed in size and horsepower until to-day it is being built up to 2,500 horsepower per cylinder.

Recently double-acting, vertical, two-stroke cycle Diesel engines have been built. One of these, with one cylinder of 1,200 horsepower, has been under tests, but the results have not yet been disclosed. It was generally known, however, that in Germany, at the Nurnberg Works, important experiments with double-acting, two-stroke engines were being carried out. At the present time a double-acting, two-cycle, three-cylinder engine of 2,000 horse-power per cylinder is being tested at Nurnberg. The dimensions of these cylinders are: Diameter, 31½ inches; stroke, 41¾ inches: and the engine runs at 160 revolutions per minute. The air supply pump for fuel injection is driven by a special Diesel engine, while the scavenging pumps are driven direct from the crankshaft. If, as seems possible, these tests also give satisfactory results, the era of very large Diesel engines suitable for driving large commercial vessels has already begun. This last engine has already yielded considerably more than 2,500 horsepower per cylinder, so that the engine unit of this kind with six cylinders would give 15,000 horsepower, or 45,000 horsepower for a vessel with triple propellers. This kind of marine engine requires six cylinders to ensure a regular turning moment and balancing, so that the number of cylinders could not be considered as abnormally high. The opinion which was prevalent some months ago that about 1,000 horsepower per cylinder was the maximum has, therefore, been knocked on the head, and it might safely be assumed that the day of the large marine engine is already near at hand.

Among the larger vessels that have been successfully installed with Diesel oil engines is the Selandia, which has two eight-cylinder Burmeister & Wain Diesel oil engines of the four-stroke type, and the Christian X, of the Hamburg-American Line. Next to these vessels, which have already been fully described in YACHTING, come some of the many vessels that have been built in Russia, ranging from 360 to 4,600 tons, and equipped with oil engines of the same type. In fact, Russia may fairly claim to be the pioneer of the marine oil engine for propelling commercial craft. Running on the Caspian Sea and on the River Volga there is quite a large fleet of



A TWIN-SCREW OIL TANK STEAMER EQUIPPED WITH TWO HEAVY OIL ENGINES OF 500 HORSEPOWER EACH



A SIDE-WHEEL PASSENGER STEAMER FITTED WITH TWO OIL ENGINES OF 300 HORSEPOWER EACH. LENGTH, 280 FEET. IN SERVICE ON THE RIVER VOLGA SINCE 1910

motor vessels equipped with such engines and electric transmission to propeller shaft, and the engines develop from 200 horsepower to 1,200 horsepower. There are also in Russia two motor gunboats, the Kars and Ardagan, on the Caspian Sea, equipped with 500 horsepower, six-cylinder Diesel engines of the Noble Maschinenfabriek manufacture. These vessels are of about 875 tons displacement, it is assumed, and carry one 4.7-inch and five 12-pounder, quick-firing guns. In addition to these, Russia claims the distinction of having no fewer than ten motor patrol boats on the Black Sea and four river gunboats on the Amur River. The Kolomnaer Maschinenfabriek, of St. Petersburg, have alone engined a fleet of commercial vessels, passenger vessels and pleasure boats which totals 32 in number.

In England the largest boat that has yet been launched is the Fionia, a sister-vessel to the Selandia, one of the largest vessels afloat fitted with oil engines. The Fionia has not yet been equipped with her motors, but it will not be long before she is running on her trials. Another English-built ship is the Toiler, a vessel of 3,000 tons, built by Messrs. Swan, Hunter & Wigham Richardson for service on the Canadian Great Lakes. She has two 2-stroke, reversible motors of 180 horsepower each, supplied by a Swedish firm.

Another large vessel that has been fitted with engines of the Diesel type is the Vulcanus, the Anglo-Saxon Petroleum Company's 2,000-ton tank vessel, which has a six-cylinder, four-cycle, reversible 450 horsepower engine, built by the Nederlandsche Fabriek en Spoorweg Materieel, of Amsterdam. The Quevilly, a 3,000-ton French bark, has two double-acting, two-stroke, reversible engines of 300 horsepower each constructed by the M. A. N., of Nurnberg, and the Romagna, a 1,000-ton Austrian passenger and cargo boat, is equipped with twin two-stroke, reversible engines of 400 horsepower each, built in Winterthur.

The shipowners on the Continent have now apparently grasped the situation, and orders for Diesel oil-engined vessels are being rapidly received, the work of the Toiler, Selandia and Vulcanus having convinced them that in the oil-engined vessel they have a thoroughly reliable craft. In England, although much interest is at present being shown, not a great deal of headway is being made in large oil-engined vessels; in fact, from the position of affairs it seems as if the English shipowner needs just as much nursing as the oil engine. However, there is not much doubt that the oil engine will eventually displace the steam engine in ocean-going vessels, although it cannot be expected to do so quickly, as the British shipowners are very conservative on this subject. They are, they state, doing as well as their fathers did before them, and they do not seem inclined to strive for more. The steam engine took a long while to oust the old sailing vessel, and the same seems to be the case with the oil engine ousting the steam engine.

From the engineer's point of view the change is a desirable one. The entire absence of boilers will make an immense difference, both at sea and in port, as most of the dirty work and disagreeable jobs arise from the steam generating part of the machinery and the handling of coal and ashes. The work on watch will be very similar to that in the steam engine room without the boilers, but it will be considerably safer, as, excepting for small piping to the air sprays and starting valves, no pipes are under pressure, and the air reservoirs are comparatively small affairs. Then, again, the pressure is not combined with high temperatures, with consequent liability to corrosion, so there is no difficulty in maintaining the strength of the affected parts. The preparation of oil engines for a voyage is a very simple matter; in fact, full speed can be had within a few minutes unless overhauling is in progress, and even then, if only one cylinder and gear are disconnected at a time, two-thirds or three-fourths of power is available. Compare this with the lighting of boiler fires many hours before steam is needed and the subsequent warming up of the engine for an hour or more before it can be safely started.

Further, there will be no banked fires and no engineer needed

A RUSSIAN RIVER TUGBOAT EQUIPPED WITH TWO OIL ENGINES. SHE HAS A TOWING CAPACITY OF 13,000 TONS

A SIDE-WHEEL MOTOR PASSENGER STEAMER ON THE RIVER VOLGA, WITH TWO DIESEL-TYPE ENGINES OF 350 HORSEPOWER EACH

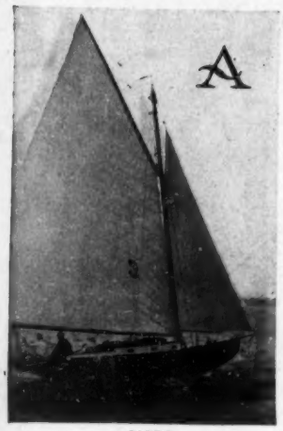
on watch, except when the engines are actually running. During an actual watch at sea, the boiler feeding system, with its pumps, piping, filters and evaporators, will be entirely cut out, and there will be no water or steam gauges to demand frequent observation. On the other hand, the air pressure for the oil sprays must be maintained, the forced lubrication system will require attention, the cooling water circulation must be kept up and periodically tested for temperature, and the valve gear, unless enclosed, will need frequent oiling at a large number of points.

The absence of boilers and fireman will greatly reduce the duties and anxieties of the engineer on watch. The work throughout the voyage would be still further reduced were the auxiliaries driven by small oil engines and the deck machinery by electric motors instead of steam, as in the case of the Selandia, there being no glands or high-pressure joints and no donkey boiler with its accessories. Then the taking in of oil fuel is an exceptionally clean operation compared with coaling, and the irksome duty of coal tallying will be replaced by tank measurement. Also, the danger of a vessel losing its power in bad weather by the water reaching the fires, or by the funnel being carried away, is largely eliminated, as an oil engine will run with its lower part under water, while the carrying away of a small funnel provided for the exhaust would be of little consequence.

In large powers a Diesel engine may at present cost considerably more than the equivalent steam equipment, but it will occupy only 60 or 80 per cent. of the space required for the steam plant. The cost of fuel will also be somewhere in the vicinity of only 30 to 40 per cent. of the cost of coal. The first cost of the oil engine will, however. as time passes, certainly become much cheaper than at present, when experience has been gained and machinery and parts standardized.

Winners in the Handicap Class of Long Island Sound

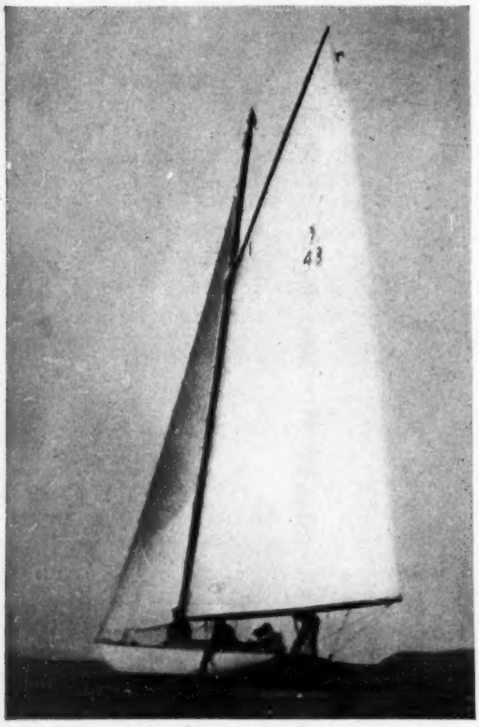
By L. DEB. HANDLEY



MIST

A CASUAL glance over the chronicles of the yacht racing season of 1912 on Long Island Sound is likely to convey the impression that the Handicap Class did not quite live up to the brilliant record it had created in the past. One notes to the credit of the percentage fleet only two hundred and ninety-eight starts in the circuit regattas and one hundred and twenty-three prizes won, as against three hundred and eighty-three starts and one hundred and seventy-one prizes won in 1911.

Further consideration, however, will show that weather conditions, the absence of some of the most active skippers and accidents to some of the boats were accountable for the lower figures rather than any lack of interest. Several of the usually popular meets were held in such weather that but few boats ventured out. The Larchmont fall regatta, for instance, found a gale raging, and only four boats reported, whereas from twenty-five to thirty can be usually counted upon for this race; while a number of races were started in such light weather that many boats could not get to the starting line. Then the fateful squall of June 29 during the New Rochelle spring regatta wrecked and sank Hazen Morse's Chinook and G. C. Molloy's Robin Hood, which deprived the class of two of its most regular contestants, while May Queen was burned in the middle of the season and Senora did not race, owing to the absence of her owner during the season.



ALERT, A LEADER IN THE FIRST DIVISION

That the handicap association is really gaining ground is demonstrated both by the swelling membership and the increased tonnage when the fleet is taken as a whole. Larger and better boats are yearly being enrolled in the class, and it is quite evident that yachtsmen are awakening more and more to the advantages to be derived from wearing the percentage sign. Forty boats were owned and raced in the class this year.

The racing in the first division was the best in the history of the class. A dozen fine boats composed the division, and five or six of them could always be relied upon to cross the line. The competition was keen, and close finishes were the rule rather than the exception. Unquestionably, of the many systems devised for the handicapping of sailboats not uniform in size and type none has given as much all-around satisfaction in results as the one used by the class and based on the actual performances of the boats in the preceding four races.

Chief honors for the season rest between R. B. Stoddard's Amada and R. B. Budd's Alert. The former heads the list of prize winners, but only by a small margin. Alert captured the Officers' Cup, for which all four divisions competed together as one class in the annual regatta of

AMADA WON THE GREATEST NUMBER OF POINTS

MAY QUEEN SUE GRACE II

the association on September 21. The following are the boats that were most successful: First division, Alert, 60 points; Sue, 36 points; Sally IX, 30. Second division, Amada, 78 points; Redwing, 48; Mist, 24. Third division, Natomah, 50 points; Amanita IV and Rascal III, 38 each. Fourth division, Grace II, 35 points; Dolly, 23, and Kenosha, 21. These points were calculated at the rate of five for a first place, three for a second and one for a third, irrespective of whether they carried prizes or not. The table affixed below will furnish further particulars. It does not, however, take into consideration performances in the open classes, in special events or in long-distance races, except when the boats competed under the association allowances for separate trophies.

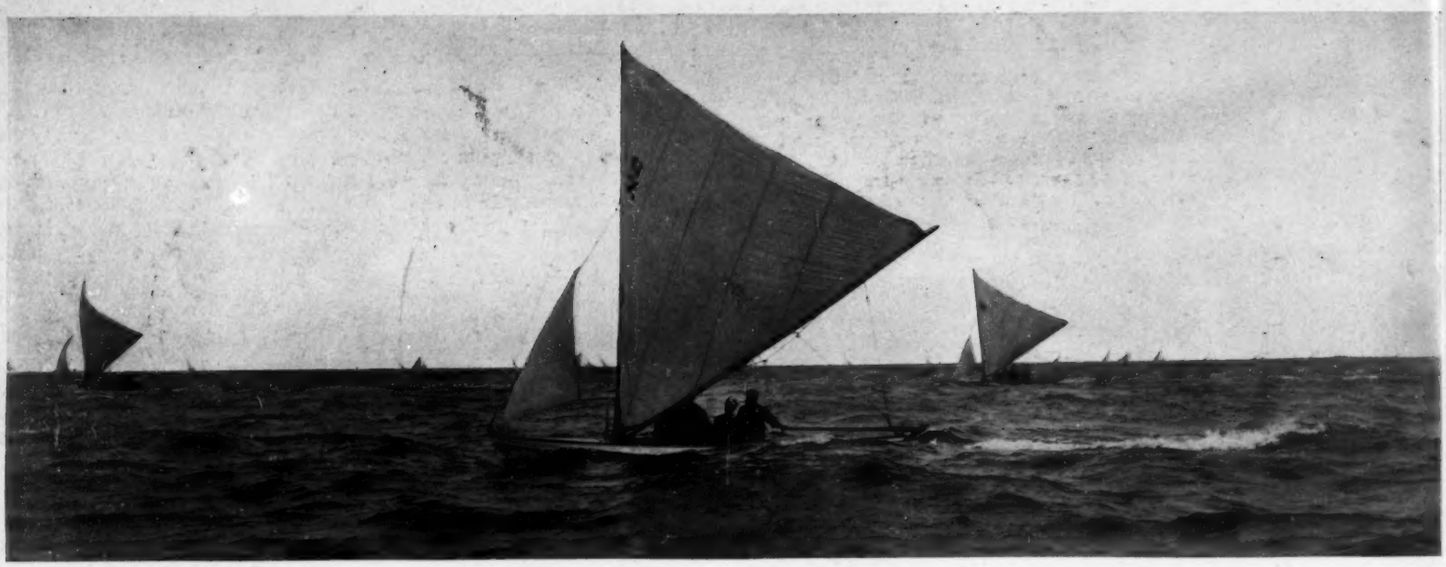
It is worthy of mention, therefore, that in three open cruising races for small craft held last summer handicap skippers swept everything before them, offering a splendid tribute to the class as a means of developing good seamanship and ability in navigating. The 100-mile run to Block Island under the auspices of the New York Athletic Club was won by the Interim, which captured both first and time prize, while second, fourth and sixth places went, respectively, to Amada, Duchess and Okee. The Stratford Shoal race of the New Rochelle Yacht Club saw Amada and More Joy land in the awards; and the Harlem Yacht Club event over the same course proved a double victory for Alert, Russell Budd taking both the elapsed and corrected time trophies from a representative fleet of eighteen.

Shortly after the close of the racing season the Handicap Class met with a loss that will be felt keenly by all of its members in the sudden death of the handicapper, Mr. Theodore Granbery. Mr. Granbery had long been identified with the class; in fact, it is largely due to him that the present system of handicapping has been satisfactorily worked out.

Seven years ago, when a little group of yachtsmen got together for the purpose of forming an association whereby yachts that had no show in the open classes could be raced on an equitable basis, they went to Mr. Granbery to help them work out a satisfactory scheme of handicapping. It was he who suggested the system of handicapping on an actual performance basis, and the scheme then adopted is, with the modifications which actual practice dictated, the one which is at present used. Mr. Granbery always had the welfare of the Handicap Class and of the sport in general at heart, was quick to suggest ways out of the many difficulties which at first arose, was untiring in his labors of handicapping, which during racing such as at Larchmont Race Week required a great deal of time, and gave liberally of his knowledge of the subject to the class.

BOAT	Harlem, May 30.	Knickerbocker, June 1.	Manhasset Bay, June 8.	Larchmont June 15.	Sewanhaka, June 22.	Block Island, June 22.	New Rochelle, June 29.	American, July 3.	Larchmont, July 4.	Stratford Shoal, New Rochelle, July 6.	Riverside, July 6.	Indian Harbor, July 13.	Larchmont, July 20.	Larchmont, July 22.	Larchmont, July 24.	Larchmont, July 25.	Larchmont, July 26.	Larchmont, July 27.	Horseshoe, August 3.	Huguenot, August 10.	Stamford, August 17.	Stratford Shoal. Harlem, August 17.	New Rochelle, August 24.	Sewanhaka, August 31.	Larchmont, September 2.	Indian Harbor, September 7.	Manhasset Bay, September 14.	Handicap Class, September 21.	Number Starts.	1st Places.	2nd Places.	3rd Places.	Points.
1st Division.																																	
Alert	1	1	3	2	..	..	4	2	2	..	..	2	5	4	2	6	1	5	3	..	..	1	2	..	1	1	1	1	21	8	6	2	60
Sue	..	..	1	4	..	..	1	..	..	..	..	..	4	2	1	3	2	2	4	..	1	..	..	2	..	2	..	..	13	4	5	1	36
Sally IX		*3	*3	3	1	..	2	..	..	..	..	1	2	3	3	5	3	3	..	..	..	X	1	..	..	3	3	6	17	3	2	9	30
Dorinda	..	..	5	..	2	..	5	..	1	..	..	3	3	1	5	2	5	1	1	..	..	..	..	..	3	4	..	..	14	4	2	3	29
Interim	..	..	..	..	..	..	3	1	3	..	..	..	1	5	4	4	4	6	2	..	..	..	..	..	..	..	..	..	11	2	2	2	18
Dutchess	2	..	2	1	3	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	1	2	1	12
May Queen	..	..	..	..	..	..	6	..	4	..	..	..	X	..	..	1	..	4	5	..	..	..	Burned		..	..	..	..	6	1	0	0	5
More Joy	..	..	X	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	X	..	..	..	..	..	5	4	0	1	0	3
OKee	..	..	..	..	..	X	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	0	0	1	1
Senora	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	0	0	0	0
2d Division.																																	
Amada	2	2	2	1	..	1	1	2	1	1	..	1	3	1	1	3	4	1	1	..	..	..	..	*1	*2	..	*2	*2	21	11	7	2	78
Redwing		1	1	2	..	..	2	1	2	..	..	2	1	3	3	1	2	4	3	..	..	..	3	..	..	..	3	2	17	5	6	5	48
Mist	NF	4	4	3	..	..	NF	..	..	..	..	..	..	..	4	4	3	2	2	..	..	X	2	..	1	..	2	1	15	2	4	2	24
Veda	*3	*2	*4	..	..	..	3	..	NF	..	..	..	..	2	2	2	1	5	..	..	..	X	..	..	..	..	..	..	11	1	3	1	15
Victory	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	X	..	..	..	..	..	3	3	1	0	1	6
Kenmuir	..	..	..	..	..	..	..	..	Dis.	3	..	..	..	..	..	..	..	..	..	..	..	X	1	..	..	..	4	6	6	1	0	1	6
Ouray	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	0	0	5
Malolo	..	..	..	4	..	..	4	..	..	..	..	..	..	..	..	..	..	6	..	..	..	X	..	..	..	..	1	4	6	1	0	0	5
Betty	..	..	*	..	..	..	..	..	..	..	..	..	2	4	5	5	..	3	..	..	..	..	..	..	..	..	..	5	6	0	1	1	4
3d Division.																																	
Natomah	..	..	1	1	1	..	1	1	3	..	..	..	1	NF	1	2	1	4	..	..	3	..	..	..	..	1	..	..	14	9	1	2	50
Amanita IV	..	1	2	3	3	..	NF	3	1	..	..	..	3	1	4	4	3	3	3	..	..	..	3	..	..	..	1	1	17	5	2	7	38
Rascal III	..	..	..	..	..	..	..	2	2	..	..	1	4	2	2	1	4	1	1	..	2	..	..	..	2	..	..	..	12	4	6	0	38
Robin Hood II	..	..	..	Dis.	2	..	2	..	..	..	2	3	2	3	3	3	2	2	..	..	1	..	..	..	4	..	2	14	1	7	4	30
Circe	..	..	..	..	NF	..	3	NF	..	..	..	..	..	..	..	..	..	..	2	..	4	..	1	..	..	2	2	..	8	1	2	2	13
Chinook	1	2	3	2	NF	..	Sunk		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	3	1	12
Cliphora	..	..	..	..	..	..	..	4	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	1	1	0	8
4th Division.																																	
Grace II	..	..	..	..	..	..	..	..	..	..	..	..	2	1	2	1	2	1	..	..	..	..	2	..	1	..	..	2	9	4	3	0	35
Kenosha	..	..	..	..	..	..	..	..	..	..	..	..	1	Dis	1	2	1	2	..	..	..	..	..	..	..	..	..	..	6	3	2	0	21
Dolly	1	2	..	..	..	..	1	.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	4	6	4	1	0	23
Ada	3	1	2	..	..	..	NF	..	NF	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	1	7	2	1	3	16
Kanaka	..	4	1	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	5	3	1	0	18
Sybilla	2	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	1	1	4
Insurgent	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	0	1	1	4
Anona	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	1	0	0	1	1
Robin Hood	4	5	NF	..	..	..	Sunk	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	0	0	0	0

* Amada and Sally IX were shifted in mid-season from the second to the first division and Veda from first to second. To give them full credit for their victories all marks have been placed under the division they competed in most. X Cross marks boat starting but time of finish not recorded. This applies chiefly to long distance races where only one prize was given for handicap boats.



DORY RACING ON MASSACHUSETTS BAY

The Month in Yachting

THE meeting of the Atlantic Coast Conference, which, by the way, will hereafter be known as the Yacht Racing Conference—a name much better suited to the character and scope of the body—held in New York in October, has definitely cleared up the several mooted points in the universal rating rule which undoubtedly prevented the building of racing boats during 1912. By this we mean that the way is now clear for the building of new boats under the rule without fear of penalties or handicaps by reason of any misinterpretation of the rule, and the indications are that next year will see a number of new racing boats out, and possibly the revival of many of the classes that have not amounted to much in recent years. This will be a thing much to be desired, as most of the classes on the Atlantic Coast have been filled with boats that have been raced for many years, and the coming of new competitors for these craft will add much to the interest of the season. We have already mentioned some new one-design classes that are under way, principally the 50's, a class of six or more sloops designed and built by Herreshoff, and a new class of 40-foot schooners for members of the Stamford Yacht Club. It is likely, too, that some new class M boats will be built to meet the Dorello II and Medora, the two 1912 boats that had things pretty much their own way at Marblehead and on Long Island Sound last summer. The changes in the rules will not be retroactive, and, at the best, are very slight, so that only those boats that are designed and contract-let after October 15 will be affected.

Yachtsmen all over the United States will hear with extreme regret of the troubles of the National Yacht Club (formerly the Brooklyn Yacht Club) which threaten to put this organization out of existence. The troubles seem to be financial ones incident to the acquiring and carrying of the large club-house and grounds of the organization on Gravesend Bay.

The Brooklyn Yacht Club (most yachtsmen have never learned to call it by its new name) is one of the oldest organizations of its kind in the country, having been organized in 1857 (55 years ago) and incorporated in 1864. For more than half a century it has encouraged boat sailing and yachting on Gravesend Bay, and has been one of the foremost organizations in the promotion of the sport, and in particular has done much for long-distance racing, encouraging its members to take their boats off shore and to qualify as real sailors off soundings, as well as in the quieter waters of New York harbor. In recent years the members have not supported the club and its officers as they should have, and it was undoubtedly this fact that has caused the present trouble, out of which every yachtsman hopes that it will fight its way clear.

What is one's loss, however, is frequently another's gain, and it is said that the Bensonhurst Yacht Club will probably come into possession of the fine club-house—Westlawn—and waterfront of the older organization. If this comes to pass it should be a good thing for the Bensonhurst Yacht Club, and will probably bring many new members into the organization. As a matter of fact, there have been too many yacht clubs on the little body of water sheltered by Norton's Point, and it would have been better if some of these clubs could have combined some time ago, making a few real strong organizations, rather than many small ones, that have never been able to offer their members much or to do much for organized sport. It is likely that many old Brooklyn Y. C. members will join the new organization and help to make it one of the largest clubs on the coast.

KEX, A LITTLE HOME-BUILT CRAFT THAT PROVED HER ABILITY IN THE POWER-BOAT DIVISION OF THE BOSTON YACHT CLUB

BARRACUDA, A 1912 60-FOOTER OWNED BY LAWRENCE F. PERCIVAL, OF MARBLEHEAD

Up on Lake Ontario, where the Canadians are busy stowing away the international cups they have won this year, they are at present making plans for another race next year for the George Cup, now held by the Royal Canadian Yacht Club. The Crescent Yacht Club, of Watertown, which has now been defeated for several years in its attempts to recapture this trophy, is making plans for a new boat to take the place of the old Watertown, which they have raced for several seasons. The money for this new boat has already been pledged, and it is likely that Mr. C. D. Mower will be the designer. These boats are in the R class, and the competition between the Toronto sailors and the Crescent Yacht Club has been very keen, the Canadians having built several new boats for the event in the last few years. It has not as yet been decided whether the Royal Canadian Yacht Club will build a new boat to meet the challenger or rely on those they already have.

The success of the power boat division of the Boston Yacht Club shows what can be done with a little energy and push by those who are interested in power boat affairs, and opens the way for an adequate recognition of power boats in clubs that have been heretofore devoted principally to the sailing end of the sport. The Boston Yacht Club has been primarily a sailing club; but with the increasing number of power boats in the club fleet a special power boat division was formed, which conducted special club cruises and races for these boats and had the welfare of their owners generally at heart. Much of the success of the division is due, as it always must be, to the energy of those at the head of it, and Rear-Commodore Roger Upton, and those working with him, can claim the full credit for what was achieved. The power boat division proved its worth on many occasions, but particularly on the annual club cruise, when it successfully brought into port three sailboats which were in serious trouble, owing to a sudden gale that swept the coast of Maine. It is also to this division that the credit of starting the successful "bang-and-go-back" races belong. Other clubs would do well to follow the lead of the Boston Yacht Club in this respect.

In the last issue we had something to say as to the need of a governing body for power boat racing to correct the many abuses which have crept into the sport and to standardize racing methods, as well as to have general supervision over racing records and championship awards. Along these lines we print below a part of the annual report of President Koerner, of the A. P. B. A., touching on this subject. The suggestions contained in this report will prove of interest, though, in our opinion, to have really national scope, a controlling body must have representation from and exercise control over all parts of the country.

DORELLO II, THE OWEN-DESIGNED CLASS M BOAT OWNED BY GEORGE I. BATCHELDER

ANNUAL REPORT OF THE PRESIDENT OF THE AMERICAN POWER BOAT ASSOCIATION

During the past year the association has made a complete change in its status and operation. It has adopted a new Constitution and By-Laws, covering the most advanced demands made upon it, and now conforms to present-day needs. The most important change is that which advances its jurisdiction from a purely advisory to a controlling basis. This places it in the secure and undisputed position of the official association of the sport of motor boating. The wisdom of this radical step has been plainly demonstrated, as it enables the Association to deal quickly and effectively with the notoriously bad conditions of to-day, which, collectively, constitute a menace to the integrity of motor boat racing. * * * * *

In a previous report, action was urged looking to official representation by this association in international races. There is every reason why this large and powerful association of clubs should be the representative in America for all International events. This does not mean that we should conduct these races, as that has been ably done by one of our constituent clubs for a number of years, but the fact is before us that the official association of America is not recognized in its sphere and is without authority in a series of races that should be conducted under its jurisdiction. It is all the more important, now that the International trophy has been won and taken out of the country. In the efforts made to recover it, a large association can be of greater service than a local club. The increased interest that can be awakened by such representation will induce wider attention to the races among motor boat men and will open a channel for more widespread financial aid.

The need of positive action for regulating races and securing accurate records has been forced upon the attention of the amateur in the sport during the season just closed. Never, during the history of motor boat racing, has such a deplorable and chaotic condition presented itself. Records of speed seem to be obtained not by the limitations of boats, but by the degree of conscience left in some localities. * * * * *

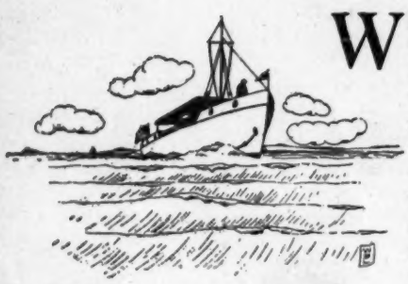
No man conversant with the influences that operate to-day will believe any record except where such record is made under known conditions, and where the course and timing are beyond all doubt. * * * This situation has forced indifference into vigorous protest and a demand for the total suppression of this state of affairs. The American Power Boat Association, having passed from an advisory to a controlling basis, must now assume the broader field of responsibility involved by the change. It must authorize all races of nation-wide interest and importance where championships are advertised. It must have representatives present at all such races to verify the courses and timing. It must tabulate, record and print in its year book all such authentic records. It must regulate the titles for the various championship affairs and prohibit senseless duplication of titles. It must confine speed boat races held in land-locked waters to the

statute mile measurement. It must discourage the growing habit of offering cash purses, because it is opposed to the best traditions of the amateur. To compel adherence to these regulations for the honest control of the sport the necessary penalties must also be enacted and applied. Therefore, if races of importance are held without these safeguards, they must be classed as unofficial, and they shall have neither record nor standing. If entries are made and boats raced in these unofficial events, they must be barred from all further participation in authorized races and all records denied them. There is but one way to reform the sport, and that way is to control it not only by authority, but by penalty. Unless the American Power Boat Association takes an immediate and resolute stand on this subject and authorizes its officers to prepare a plan and scope for the prevention of dishonest methods in racing and set the plan in operation, it will have neglected the greatest opportunity in its entire career to institute a genuine and far-reaching reform.

A Sailorman's Yarn

A Veracious, but Blankety-blank Tale

By WM. B. LAUB, JR.



"WE HOVE HER UP SHORT AT SUN-UP"

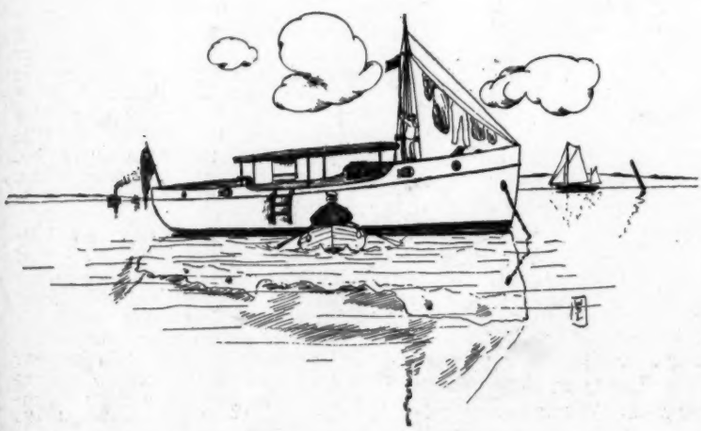
WE hove 'er up short at sun-up, without settin' nary a sail, an' I spit with disgust w'en ther skipper remarked that we probably was in for a gale. For what did he know about weather? Him, a yachtin' man, cruisin' aroun', in a forty-hoss seagoin' cruiser, wat couldn't live outer ther Soun'! I'd shipped 'cause I'd gorn an' got stranded, w'en my mates left me rummed up ashore, an' ther good Roarin' Ann was shorthanded w'en she fished her hook two weeks before.

So here I was standin' up for'ard—on a power yacht, they called it, I think—an' my berth, mates, sure did look some easy, after win'jammin' out on ther drink. But I found I'd a few more looks comin', 'cause we'd hardly got offen ther land w'en it come on to blow from the east'ard an' a bunch o' things had to be man'd. First, I laid out right smart on ther awnin', an' furled it up shipshape an' neat, to save it from goin' to lee'ard an' to keep ther ole girl on her feet; 'cause ther first puff that hit laid her over 'till a lee greener licked up on deck, an' I thought she would never recover—which she wouldn't of, sowelp me, by heck! if that buljine had ever stopped runnin' while we was knocked down that a'way, or hed kept us from headin' up to it by throwin' a fit, as they say. But we did lay her head up to wind'ard, an' tho' nary a butt did she start, she got hit by two or three curlers, 'till I thought sartin somethin' would part.

It kept gettin' worse toward ther mornin', an' ther ole man got worried plum sick. He'd steered since ther blow set in heavy, an' now it was comin' on thick. At last it were mor'n he could stand fer, an' he rung down the engine to "slow," while I made

"SO I RIGGED UP A LOOSE-FOOTED MAINS'L"

a line fast to the painter of the dink we hed hed in tow. It was soon on the job as an anchor, but on the next lift of the sea I sighted a beach off to lu'ard that looked right familiar to me. We kept gettin' nearer an' nearer 'till we passed close aboard of a nun; which told us we'd drifted on soundin's an' had best hit ther beach on the run. So I rigged up a loose-footed mains'l, an' soon as a bad one hed passed we swung her head off under canvas that threatened to rip out ther mast. We wasn't long makin' ther breakers; but, mates, you kin b'lieve me or no, there laid, dead ahead, ther same harbor we'd left but a few hours ago! There was somethin' uncanny about it—to make the same port under sail that we'd pulled out of under ther engine an' fetched again durin' ther gale! It peered like it never was 'tended fer man to be pleasurin' afloat in anything but a win'jammer, an' certainly no motor boat. I reckon that most of 'ems worthy, so long as their engines don't fail; but you'll never catch me offen soundin's unless I'm a-carryin' of sail!



"AN' MY BERTH, IT DID LOOK SOME EASY"

"MADE A LINE FAST TO THE PAINTER OF THE DINK WE HED HED IN TOW"

Twelve Months in a "Spouter"

By WALTER NOBLE BURNS

III.—*On the Bowhead Grounds of Behring Sea*

[FOREWORD.—In the previous instalments Mr. Burns has told how, after shipping as a "green hand" on board the whaling brig Alexander at San Francisco, he became infected with the spirit of discontent which was rife in the forecastle when it was learned that the regular custom on whale ships was to pay the men off at the end of the cruise with "one big iron dollar" each, while the profits of the voyage were divided up among the officers and harpooners. He was contemplating an attempt to escape ashore to the coast of Lower California, more for the adventure of the thing than through any actual sense of injury, when a surreptitious examination of a chart changed his mind by showing that there was no inhabited place within a hundred miles of arid shore. While on the sperm grounds of the Pacific, the second mate, a Cape Verde Island negro, with whom the author had been continually at swords' points, was drowned in the wreckage of a whaleboat which had been knocked to pieces by a maddened bull sperm.

Later, while among the Hawaiian Islands, Burns got himself into a peck of trouble by two unsuccessful attempts to "jump ship," in one of which he swam for a mile in shark-infested waters before being overtaken and captured by a boat sent out from the ship. For this escapade he was kept on a bread and water diet for a week, besides being treated to a spirited harangue from the "old man"—who, however, failed signally to carry out his terrible threats against the young "greenhorn." During a gale in the North Pacific the captain was swept from his feet by a boarding sea and had his leg broken by the fall; but the ship kept on for Behring Sea under command of the mate.]

THE storm did not blow itself out. It blew us out of it. We must have drifted sidewise with the seas about six hundred miles. At dawn of the second day after leaving the fury of the "forties" behind, we were bowling along in smooth water with all sails set. The sky was clear and the sea like hammered silver. Far ahead a mountain rose into the sky—a wedge-shaped peak, silver-white with snow, its foot swathed in purple haze. It rose above Unimak Pass, which joins the Pacific Ocean and Behring Sea between Unimak and Ugamok Islands, of the Fox Island chain.

Unimak Pass is ten miles broad, and its towering shores are sheer, black, naked rock. Mr. Winchester, who had assumed command after the captain had his leg broken, set a course to take us directly through the passage. Running before a light breeze that bellied all our sails, we began to draw near the sea gorge at the base of the mountain. Then, almost without warning, from over the horizon came a savage white squall, blotting out mountain, pass, sea and sky.

I never saw bad weather blow up so quickly. One moment the ship was gliding over a smooth sea in bright sunlight. The next, a cloud, as white and almost as thick as wool, had closed down upon it; snow was falling heavily in big, moist flakes; a stiff wind was heeling the vessel far over on its side, and we could not see ten feet beyond the tip of the jib boom.

The wind quickened into a gale. By fast work we managed to furl sails and double-reef the topsails before they carried away. Soon the deck was white with four or five inches of snow. On the forecastle-head Big-Foot Louis, the boatsteerer, was posted as lookout. Everybody was anxious. Mr. Winchester took his stand close by the main shrouds at the break of the poop and kept gazing ahead through his glasses into the mist. The sailors and boatsteerers crowded the forward rails, peering vainly into the swirling fog. Big-Foot Louis bent forward with his hand shielding his eyes from the falling snow.

"Land, land!" he cried.

If it were land that Louis saw through the clouds and blinding snow it was mighty close. Our doom seemed sealed. We expected the ship to crash bows-on upon the rocks. We nerved ourselves for the shock. A momentary vision of shipwreck on those bleak coasts in snow and storm obsessed me. But Louis' eyes had deceived him. The ship went riding on its stately way through the blinding snow before the gale.

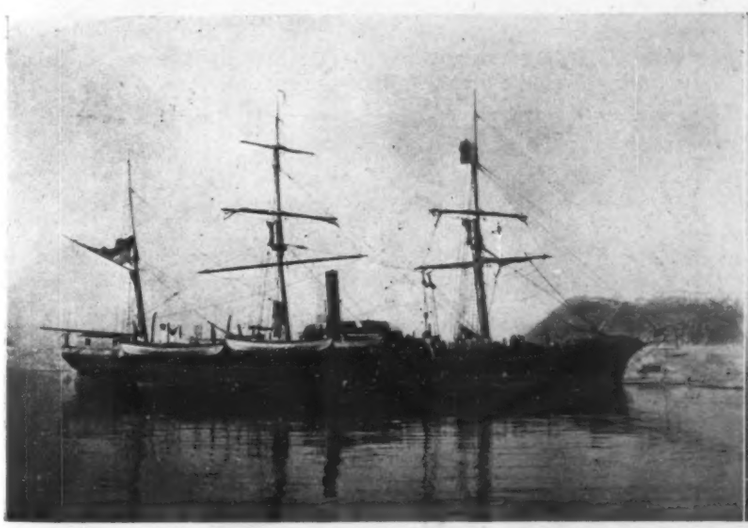
The situation was ticklish, if not critical. We had been headed squarely for the passage before the storm closed down. Now we could not see where we were going. If we held directly upon our course, we were safe. If the gale blew us even slightly out of our way, shipwreck and death on the rock-bound shore awaited us. Which would it be?

Mr. Winchester was a man of iron nerve. He demonstrated this now, as he did many times afterward. He was as skillful a navigator as he was a fearless one. He knew his reckonings were good. He knew that when the squall shut out the world the brig's nose was pointed directly at the center of Unimak Pass. So he did not veer to east or west, or seek to tack back from the dangerous coasts on our bows, but drove the vessel straight upon its course into the blank white wall of mist and snow.

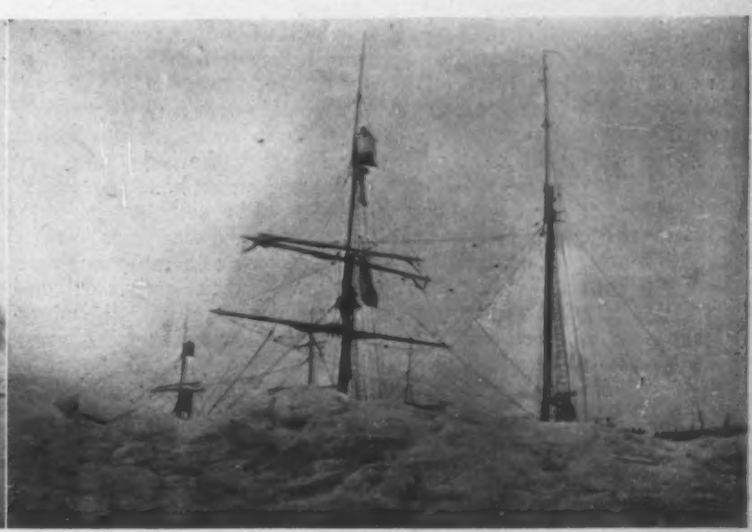
An hour later the squall lifted as quickly as it had come. Blue skies and sunshine came back. We found ourselves almost becalmed on a placid sea. To the south lay the outline of a lofty coast.

A boatsteerer bustled forward. "We are in Behring Sea," he said, with a laugh.

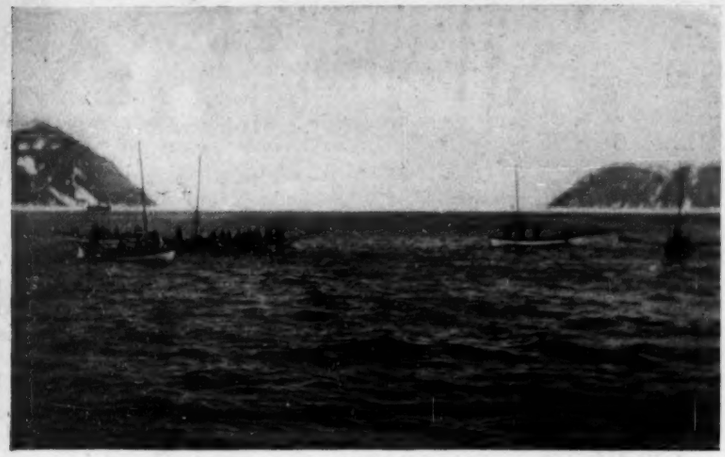
We had shot through the narrow channel without sighting the shores. I have often wondered just how close to port or star-



"THE CREW OF A DISTANT SHIP WAS TRYING OUT A WHALE"



"FOR THREE WEEKS OUR VESSEL REMAINED MOTIONLESS IN SOLID ICE"



WAITING FOR THE WHALE TO COME UP AFTER SOUNDING

board death was to us that morning on the black cliffs of Unimak Pass.

From Unalaska, into which port we put to have the captain's leg attended to, the brig stood northwesterly for the spring whaling on the bowhead and right whale grounds off the Siberian coast. We were a week's sail from the Fox Islands when we encountered our first ice. It appeared in small chunks floating down from the North. The blocks became more numerous until they dappled the sea. They grew in size. Strings and floes appeared. Then we brought up against a great ice field stretching to the north as far as the eye could see. It was all floe ice broken into hummocks and pressure ridges and pinnacles with level spaces between. There were no towering bergs, such as are launched into the sea from the glaciers on the Greenland coast and the Pacific coast of Alaska. The highest berg I saw on the voyage was not more than forty feet high. It was composed of floe ice, which had been forced upwards by the pressure of the pack.

The crow's nest was now rigged and placed in position on the cross-trees abaft the foremast between the topsail and the fore-top-gallant yards. It was a square box of heavy white canvas nailed upon a wooden framework. When a man stood in it the canvas sides reached to his breast and were a protection against the bitter winds. From early morning until dark an officer and a boatsteerer occupied the crow's nest and kept a constant lookout for whales.

As soon as we struck the ice, the captain's slop-chest was broken open and skin clothes were dealt out to the men. Accoutred for cold weather, I wore woolen underwear and yarn socks next my flesh; an outer shirt of squirrel skin, with hood or parka; pants and vest of hair seal of the color and sheen of newly minted silver; a coat of dog skin that reached almost to my knees; a dog-skin cap; deer-skin socks with the hair inside over my yarn socks; walrus-hide boots and walrus-hide mittens over yarn mittens. The walrus-hide boots were fastened by a gathering-string just below the knees and by thongs of tanned skin about the ankle. Some of the men wore heavy reindeer-skin coats. The skin clothes worn by the officers and boatsteerers were of finer quality and more pretentious. Perhaps the handsomest costume was that of "Little Johnny," a boatsteerer, the dandy of the crew. It consisted of coat, vest and trousers of silvery hair-seal with the edges of the coat trimmed with the snow-white fur of fur-seal pups. With this he wore a black dog-skin cap and walrus-hide boots.

While we were among the ice the officer in the crow's nest directed the course of the brig. Whaling officers are great fellows to show their skill by just grazing dangerous ice. Many a time we green hands stood with our hearts in our mouths as the ship seemed about to crash into a berg bows-on.

"Starboard!" would come the order from aloft.

"Starboard, sir!" the helmsman would respond.

The bow would swing slowly to one side and the berg would go glancing along the rail, so close, perhaps, that we could have grabbed a snowball off some projection.

"Steady!" the officer would call.

"Steady, sir!" The bow would stop in its lateral swing.

"Port!"

"Port, sir!" The bow would swing the other way.

"Steady!" We would be upon our old course again.

Once I remember the mate was in the crow's nest and had been narrowly missing ice all day for the fun of the thing—"showing off," as we rather disturbed green hands said. A berg about thirty feet high—a giant for Behring Sea waters—showed a little ahead and to leeward of our course. The mate thought he could pass to windward. He kept the brig close to the wind until the berg was very near. Then he saw a windward passage was impossible, and tried suddenly to go to leeward.

"Hard up your wheel!" he cried.

"Hard up it is, sir!"

The bow swung towards the berg—swung slowly, slowly across it. The tip of the jib-boom almost rammed a white pinnacle. Just when everybody was expecting the brig to pile up in wreck on the ice the great berg swept past our starboard rail. But we had not missed it. Its jagged edges scraped a line an inch deep along our side from bow to stern.

Shooting *okchug*, or hair seals, was a favorite amusement in the spring ice. The mate was an expert with a rifle. He shot many as they lay sunning themselves on ice cakes. Okchugs are as large as oxen, and are covered with short silvery hair, so glossy that it fairly sparkles. If an okchug was killed outright, its head dropped over upon the ice and it lay still. If only slightly wounded, the animal flounced off into the sea. If vitally hurt, it remained motionless, with its head up and glaring defiance, whereupon a boat's crew would row out to the ice cake and a sailor would finish the creature with a club.

It was exciting to step on a small ice cake to face a wounded and savage okchug. The animal would come bouncing on its flippers straight at one with a vicious, barking roar. The nose was the okchug's most vulnerable point. A tap on the nose with a club would stretch the great creature out dead. It required a cool head, a steady nerve and a good aim to deliver this finishing stroke upon the small black snout. If one missed or slipped on the ice, the possible consequences would not have been pleasant. We tanned the skins of the okchug and made them into trousers or "pokes." The meat was hung over the bows to keep in an ice-box of all outdoors. Ground up and made into sausages, it was a *piece de resistance* on the forecastle bill of fare.

One night in the latter part of May we saw, far off, a great light flaring smokily across the sea. It was what is known in whaler parlance as a bug-light, and was made by blazing blubber swinging in an iron basket between the two smokestacks of a whale ship's try-works. By it the crew of that distant ship was working at trying-out a whale. The bug light signaled to all the whaling fleet the first whale of the season.

THE CREW OF THE BRIG WASHING WHALEBONE

The great continent of ice drifting southward gradually closed round the fleet. The ships had worked so far in there was no escape. In the early part of June the brig was frozen in. Eighteen other ships, also frozen in, were in sight. For three weeks the vessels remained motionless in solid ice with every stitch of canvas furled. No water or land was in sight—nothing but one great sweep of broken and tumbled ice as far as the eye could see. Those three ice-bound June weeks were given over to idleness. A stove was placed in the forecastle and was kept going night and day. This made it possible to keep comfortable and to read.

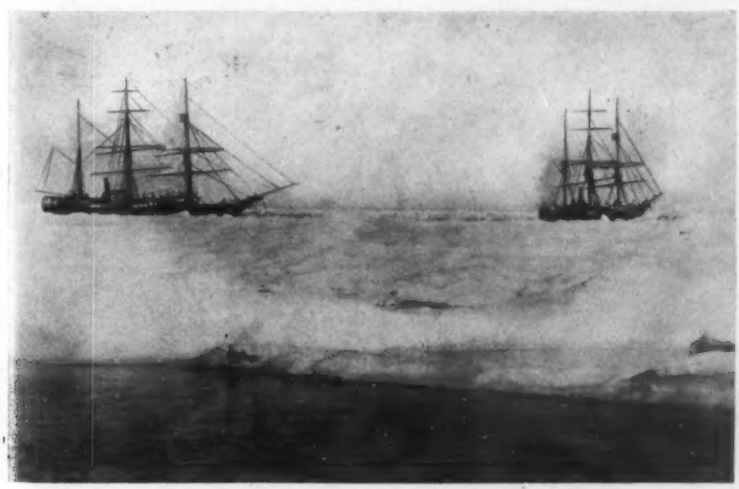
We went on frequent seal hunts. We strolled across the frozen sea to visit the other ships, the nearest of which was two miles away. Visiting is called "gamming" by whalers. We learned the gossip of the fleet—who had taken the first whale, how many whales had been caught, the adventures of the ships, the comedies and tragedies of the whaling season.

We established, too, what we called the "Behring Sea Circulating Library." There were a number of books in every forecastle. These greasy, dog-eared volumes we passed about from ship to ship. Perhaps there were twenty books aboard the brig which had been read by almost every member of the crew, forward and aft. Before we got out of the ice we had exchanged these volumes for an entirely new lot from other ships.

One morning I awoke with the ship rocking like a cradle. I pulled on my clothes and hurried on deck. The ice fields were in wild commotion. Great swells from some storm in the open sea to the south were rolling under them. Crowded and tumultuous waves of ice twenty feet high chased each other across the frozen fields from horizon to horizon. The ship would sink for a moment between ridges of ice and snow and then swing up on the crest of an ice mountain. Great areas of ice would fall away as if the sea had opened beneath them. Then they would shoot up and shut out half the sky. The broken and jagged edges of these white and solid billows appeared for an instant like a range of snowy Sierras, which in another instant would crumble from view as if some seismic cataclysm had shaken them down in ruin. The air was filled with grinding, crushing, ominous noises and explosions.

The ship was in imminent peril. In that mad turmoil of ice it seemed certain that it would be ground to pieces. The captain, who was hobbling about on crutches, ordered a cask of bread, a cask of water and a barrel of beef hoisted on deck to be ready to be thrown out on an ice cake in case the brig was wrecked and we were cast away.

In the grinding of the floes the ship became wedged in between two immense pieces of ice. The great bergs washed closer and closer. When they rose on some tremendous billow, great caverns, washed out by the sea, appeared in their sides like mouths, edged with splinters and points of blue and glittering



WHALESHIPS FROZEN IN IN BEHRING SEA

"NOTHING BUT ONE GREAT SWEEP OF BROKEN, TUMBLED ICE AS FAR AS THE EYE COULD SEE"

ice-like fangs. As they rose and fell, it seemed the two white monsters were opening and closing devouring maws for us, while the suck of the water in their ice caves made a noise like the roar of hungry beasts of prey.

A cable was run out hurriedly over the bow and a bowline at the end of it slipped over a hummock of ice. With the inboard end wound around the windlass, all hands worked like beavers to heave the brig out of its hazardous position. It was all the crew could do to swing the windlass bars up and down. The ship went forward slowly, almost imperceptibly, and all the while the great bergs swept closer and closer. For a long time it looked as if we were doomed. There was no doubt about the ship's fate if the bergs struck us. But inch by inch, heave by heave, we hauled her through. Ten minutes later the ice monsters came together with a force that would have crushed an ironclad.

Gradually patches of clear water began to appear in the ice. It was as if the white fields were opening great blue eyes. Little lakes and zig-zag lanes of water formed. Sails were set. The brig began to work her way along. Soon she was swinging on heavy billows—not white billows of ice, but green billows of seawater, thick with ice in stars and constellations.

We had hardly washed clear of the ice in the heavy seas when "Blow!" rang from the crow's nest. A school of whales close ahead, covering the sea with fountains, was coming leisurely toward the ship. There were more than thirty of them.

"Bowheads!" shouted the mate.

Their great black heads rose above the surface like ponderous pieces of machinery; tall fountains shot into the air; the wind caught the tops of the fountains and whisked them off in smoke; hollow, sepulchral whispers of sound came to the brig as the breath left the giant lungs in mighty exhalations. Why they were called bowheads was instantly apparent—the outline of the top of the head curved like an Indian's bow. As the head sank beneath the surface the glistening back, half as broad as a city street and as black as asphalt, came up out of the sea and went down again.

Our crippled captain, in his fur clothes and on crutches, limped excitedly about the quarterdeck glaring at $300,000 worth of whales spouting under his nose. But with so much ice about and such a heavy sea running he was afraid to lower.

If the whales saw the brig they gave no sign. They passed all around the vessel, the spray of their fountains blowing on deck. One headed straight for the ship. The mate seized a shoulder bomb-gun and ran to the bow. The whale rose, blew a fountain up against the jib-boom and dived directly beneath the brig's forefoot. As its back curled down, the mate, with one knee resting on the starboard knighthead, took aim and fired. He surely hit the whale—there was little chance to miss. But the bomb evidently did not strike a vital spot, for the leviathan

THE LOFTY COAST NEAR UNIMAK PASS

passed under the ship, came up on the other side and went on about its business.

The sight of all these whales passing by us with such unconcern, blowing water on us as if in huge contempt, almost seeming to laugh at us and mock our bombs and harpoons and human skill, drove the captain frantic. Should he allow that fortune in whales to escape him without a try for it? With purple face and popping eyes he gazed at the herd, now passing astern.

"Lower them boats!" he cried.

"What?" expostulated Mr. Landers. "Do you want to get us all killed?"

"Lower them boats!" yelled the skipper.

"Don't you know that a boat that gets fast to a whale in that ice will be smashed, sure?"

"Lower them boats!" shouted the captain.

Mr. Winchester, enthusiastic and fearless whaleman that he was, was eager for the captain's order. His boat and Mr. Landers' went down. The waist boat—mine—was left on its davits. But Gabriel, its boatheader, armed with a shoulder gun, went in the mate's boat. Left aboard to help work ship, I had an opportunity to view that exciting chase from beginning to end.

With storm-reefed sails, the boats went plunging away over the big seas, dodging sharply about to avoid the ice cakes. Not more than two hundred yards away on our starboard beam a great whale was blowing. The mate marked it and went for it like a bulldog. He steered to intercept its course. It was a pretty piece of maneuvering. The whale rose almost in front of him, and his boat went shooting upon its back. Big John let fly his harpoon. Gabriel fired a bomb from his shoulder-gun. There was a flurry of water as the whale plunged under. Back and forth it slapped with its mighty flukes as it disappeared, narrowly missing the boat. Down came the boat's sail. It was bundled up in a jiffy, and the mast slewed aft until it stuck out far behind. Out went the sweeps. The mate stood in the stern wielding a long steering oar. I could see the whale line whipping and sizzling out over the bows.

For only a moment the whale remained beneath the surface. Then it breached. Its black head came shooting up from the water like a titanic rocket. Up went the great body into the air until at least forty feet of it was lifted against the sky like some weird, mighty column, its black sides glistening and its belly showing white. Then the giant bulk crashed down again with a smack on the sea that might have been heard for miles and an impact that sent tons of water splashing high in air. For an instant the monster labored on the water as if mortally hurt, spouting up fountains of clotted blood that splattered over the ice blocks and turned them from snow-white to crimson. Then a second time the whale sounded and went speeding away to windward, heading for the ice pack.

It dragged the boat at a dizzy clip, despite the fact that the line was running out so fast as to seem to the men in the boat a mere vibrant, indistinct smear of yellow. The boat was taken slicing through the big waves, driving its nose at times beneath the water and knocking against lumps of ice. A long ice block appeared in its course. A collision seemed inevitable unless the boat was cut loose from the whale.

Captain Shorey was watching the chase with fierce intentness as he leaned upon his crutches on the forecastle head. He had been filled with great joy, seized with anxiety or shaken with anger as the hunt passed from one phase to another. He shouted his emotions aloud, though there was never a chance for the men in the boats to hear him.

"Good boy, Long John!" he cried when the boatsteerer drove his harpoon home.

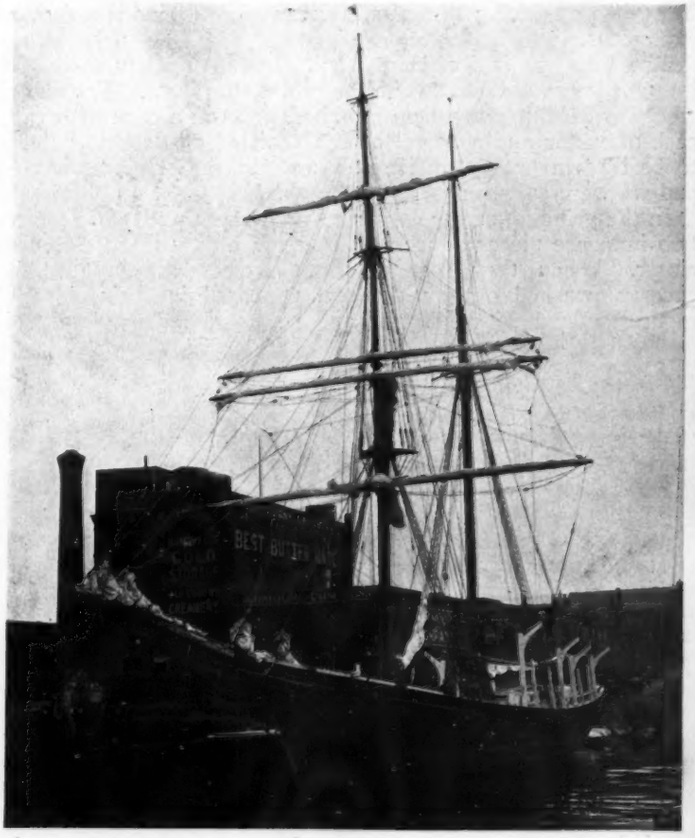
"That's our fish!" he had chortled, as the wounded leviathan leaped high against the sky and spouted blood over the ice.

Now when it seemed possible that the mate would be forced to cut loose from the whale to save his boat from destruction, the captain danced about on his crutches in wild excitement.

"Don't cut that line! Don't cut that line!" he yelled.

Mr. Winchester realized, as well as the captain, that there was something like $10,000 on the other end of the rope, and he had no idea of cutting loose. Towed by the whale, the boat drove toward the ice. The mate worked hard with his steering oar to avoid striking the block. It was impossible. The bow smashed into one end of the ice cake, was lifted out of the water and dragged across, to slip back into the sea. A hole was stove in the starboard bow, through which the water rushed. The crew thereafter was kept busy baling.

It was evident from the fountains of blood that the whale was desperately wounded; but its vitality was marvelous, and it



WHALING BRIG VIOLA, THE LAST WHALING SHIP BUILT. LAUNCHED IN 1910

seemed it might escape. When Mr. Landers saw the mate's line being played out so rapidly he should have hurried to the mate's boat and bent the line from his own tub to the end of the mate's line. As an old whaleman, Mr. Landers knew what to do in this crisis; but in such ice and in such high seas he preferred not to take a chance. Mr. Landers was a cautious soul, so he held his boat aloof. The mate waved to him frantically. Big John and Gabriel wigwagged frenzied messages with waving arms.

As for Captain Shorey, on his crutches on the forecastle head, when it seemed certain that the whale would run away with all the mate's line and escape, he apparently suffered temporary aberration. He damned old man Landers in every picturesque and fervent term of an old whaleman's vocabulary. He shook his fists at him. He waved a crutch wildly.

"Catch that whale!" he yelled, in a voice husky and broken with emotion. "For God's sake, catch that whale!"

All this dynamic pantomime perhaps had its effect on Landers. At any rate, his men began to bend to their sweeps, and soon his boat drew alongside that of the mate. His line was tied to the free end of the rope in the mate's almost exhausted tub just in time. The mate's line ran out and Landers' boat became fast to the whale.

Fortune favored Landers. His boat was dragged over the crests of the seas at thrilling speed, but he managed to keep clear of ice. The whale showed no sign of slowing down. In a little while it had carried away all the line in Mr. Landers' tub. The monster was free of the boats at last. It had ceased to come to the surface to blow. It had gone down into the deep waters, carrying with it the mate's harpoon and 800 fathoms of manila rope. It seemed probable it had reached the safety of the ice pack and was lost.

The boats came back to the brig—slowly, wounded, limping over the waves. The flying spray had frozen white over the fur clothes of the men, making them look like snow images. They climbed aboard in silence. Mr. Landers had a hang-dog, guilty look. The skipper was a picture of gloom and smouldering fury. He bent a black regard upon Mr. Landers as the latter swung over the rail, but surprised us all by saying not a word.

When the next day dawned we were out of sight of ice, cruising in a quiet sea. A lookout posted on the forecastle head saw, far ahead, a cloud of gulls flapping about a dark object on the surface. It was the dead whale. As proof that it was ours, the harpoon sticking in its back bore the brig's name, and fast to the haft and floating far out on the sea in a tangled mass was the 800 fathoms of line of the brig's two tubs.

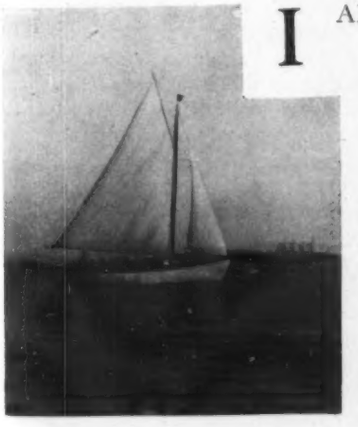
(To be continued.)

An Experiment that Succeeded

A Power Launch With Auxiliary Sails That Proved a Good Sea Boat and Could Really Sail

By THE CAPTAIN

[EDITOR'S NOTE.—In the June, 1912, number of YACHTING appeared the plans of a combination power and sail boat that attracted much attention because she was designed primarily as a power boat that could be sailed. The plans caused a great deal of favorable comment at the time, and it is interesting to note in the following article how well the experiment, for she was really that, has turned out. This type of boat seems to solve the problem of the man who wants the speed and convenience of a power boat and yet wants to sail whenever there is a sailing breeze.]

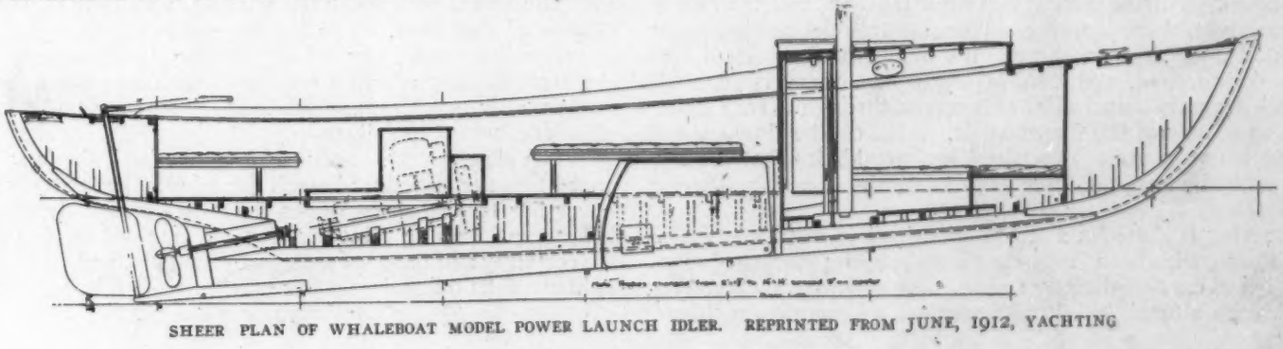


I AM the fortunate owner of a boat that has come down to me through the ages. When the Phœnicians first carried an alphabet and commerce to the western nations of the Mediterranean, and, later, sailed to far-away Britain for tin; when Ulysses, on his memorable wanderings, balanced the dangers of Scylla and Charybdis; when Greek, Roman and Persian, not to mention other freebooter expansionists of antiquity, struggled for supremacy on the water; when Lief Ericson discovered what has ever since remained undiscovered—to wit, Vineland; and, centuries later, when Ichabod Paddock sailed from Cape Cod to Nantucket to teach the inhabitants how to catch whales in the waters adjacent to that wind-swept island, they all made history in my type of boat—for be it known that my boat is of the form that for a hundred years swung from the davits of every tubby little whaler that sailed out of New Bedford to chase whales on many seas. In short, my boat is a modification of a whaleboat, the finest sea boat ever conceived by man.

A year ago, when the gray matter under my hat began to flirt with the fascinating problem of a boat, there were several factors in the equation to be solved that demanded early consideration. Beside the question of expense, there was also the question of the time that might be devoted to the use of the boat, and, above all, the seeming necessity, doubtless born of the sea germ, that has come down to me from remote, seafaring Nantucket ancestors, that my ship should be able to sail fairly well under canvas and take care of herself in any weather that was likely to overtake her.

Of course, the readiest answer to all this was an auxiliary; but it required no second thought to point out the fallacy of such a solution. As my use of a boat was confined to day sailing on such chance occasions as might arise, it was obvious that a cabin cruiser with a cramped cockpit and with no more power than has the ordinary cruiser would not afford me the degree of enjoyment in "motoring" on calm days that I desired.

As the result of a good deal of cogitation I decided that what I wanted was a power boat with a big, roomy cockpit or standing



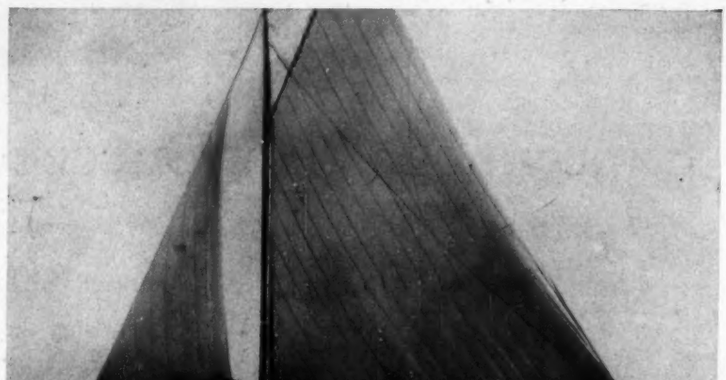
SHEER PLAN OF WHALEBOAT MODEL POWER LAUNCH IDLER. REPRINTED FROM JUNE, 1912, YACHTING

room, and sufficient "cloth" to make her really sail. Sundry recollections of boyhood experiences with a decked-over whaleboat (that in her pristine days had sailed the seven seas) in the smoky sou'westers of Buzzard's Bay indicated that type of craft. And this was the problem that I laid down on Mr. Crowninshield's drafting table for solution. Like most problems, it was easier stated than solved, and the right answer was not hastened by the prediction of volunteer critics that, in the end, there would be neither a power boat nor a sailboat, but simply a mixed failure. It is my pleasure to describe the architect's great success.

As YACHTING for June contained the hull and sail plans of the boat while she was under construction, it suffices for present purposes to state the dimensions and describe the characteristics that distinguish her from other boats.

Her length over all is 35 feet; length, waterline, 30 feet 6 inches; beam, 9 feet; draft, 3 feet; draft with board down, 5½ feet; freeboard at bow, 4 feet; freeboard at stern, 2½ feet.

In the mainsail are 386 feet of canvas and in the jib 93 feet. (If I were to repeat, I should make the sails a little larger.) The rig is of the knockabout type, and the jib has a short club and works on a traveler with a single sheet running aft. In addition to the weight of the engine—about 900 lbs.—she carries 2,200 lbs. of inside ballast, to which is to be added the weight of anchors and fittings and two cylindrical copper gasolene tanks, one under each forward seat, which, when full (which happened only once this season), weigh 480 pounds. The short centerboard—5 feet long and about a foot high above the flooring—is weighted with 50 pounds of lead.



IDLER, A 35-FOOT POWER BOAT THAT CAN REALLY SAIL

In the forepeak is a storage room for sails and covers and spare rigging. The cabin is 8 feet long, with 4½ feet head room, and has transoms to sleep two very comfortably, and a toilet and clothes locker. The standing room is 17½ feet long. On either side of the centerboard fore and aft, with ends against the bulkhead, is a seat, the two comfortably seating seven persons. Aft are two more seats, holding four persons. A dozen or fifteen may find room without feeling crowded.

The engine, two-cylinder, four-cycle, rated at 12-15 horsepower, is in a box 2 x 2½ feet and 2 feet high. The top is a hatch that makes a luncheon table or a seat, and the small box over the flywheel makes another comfortable seat, with the engine box for a back. The control side of the engine is reached through two hinged doors and the lubricating system by a small hinged door that drops down in front. The whole box is put together with screws, and can be taken apart, whenever necessary, in a very few moments. All the wiring is within the box, and, as this is made watertight, there is never any engine troubles arising from moisture. Finally, the hatch and side doors can be hooked and the drop door locked, and thus safety to machinery is secured. The clutch lever is detachable, and works through a trap made of a section of one of the floor boards, which can be closed when the engine is not in use. The wheel has two blades that feather in a line with the keel, and thus offer but little, if any, resistance when under sail.

The steering is done by a tiller. A wheel is installed on the cabin bulkhead with both leads running along the starboard side, one part being carried directly to the tiller and the other ending in a hook with a turnbuckle that fastens to a separate short lead on the port side that, in turn, runs through a pulley to the tiller. The fastenings at the tiller are a hook and screw-eye. When under sail, the ends of the leads are on the back of the seats, under the deck and out of the way. It is a simple and effective arrangement for steering from the forward part of the boat when under power, but it was used only a few times and will be taken out. It is much pleasanter steering aft, and by sitting on the after deck, with the feet resting on the seat, the low cabin roof presents practically no obstruction to the view ahead. A wheel will supplant the tiller another season.

My boat was not designed for a cruiser, yet she has capabilities in this respect that are worthy of consideration. The waterproof awning is cut to fit snugly around the mast, and is given sufficient rigidity by two thin battens fitted into pockets. By removing the battens the awning becomes a cover, with a lace line on either side attached to hooks in the deck, which, when hauled taut, makes the standing room as snug as the conventional "bug in a rug," and provides a stateroom or cabin 17 feet long, with full headroom in the center. If need were, seven persons could find comfortable sleeping space here, besides two in the cabin, and they would be much less crowded and much cooler on hot nights than on the average cabin cruiser.

Of the sailing and seagoing merits of my little packet it is not easy to write without enthusiasm. When the engine is excusing its existence she easily makes 8 miles, and can be made to do 9. Doubtless there are many faster cruising cabin motor boats of the same dimensions, but none of them were met last season in the vicinity of Boston and Marblehead, a statement that suggests its own inference. Engine troubles recurred the past season with exasperating frequency; but those, I believe, were mainly due to the indifference and inattention of those charged with the duty of installing the engine and seeing that it was properly tuned. In calm weather, with the big awning set and the engine working smoothly, there is great content and a feeling of luxury in the boat that is not wholly destroyed by the temporary insubordination of the quartermasters and irreverent "back talk" among the crew that would be so fatal to discipline on any other craft.

But it is when under sail in an ordinary single-reef breeze or better (or worse), with a good sea running, that my boat displays her virtues. In light airs (when one expects to use the engine) she is sluggish, because of her small spread of sail; but when the wind whistles through the rigging and the conditions are somewhat eccentric, she goes to windward very well, and has no difficulty in outsailing most of the old-time sloops of her dimensions. Off the wind at such times she can keep well to the front in a procession of fast ones. The Hydrographic Office says it is 19 2/5 statute miles from Long Wharf, Boston, to Marblehead Light by the shortest course. In a reach and with a tender astern, I have made that in two hours, which is pretty good for a little boat that was foredoomed to failure.

While slow in stays, owing to her long keel, she is so well bananced that she will steer herself for a half hour at a time, and she never has to be favored when the slams come. Instead of wallowing and making things messy, she eats out to windward with the certainty and haste of a perfect little lady, and when the weight lightens, falls off and goes her course without loss of headway.

(Continued on page 386.)

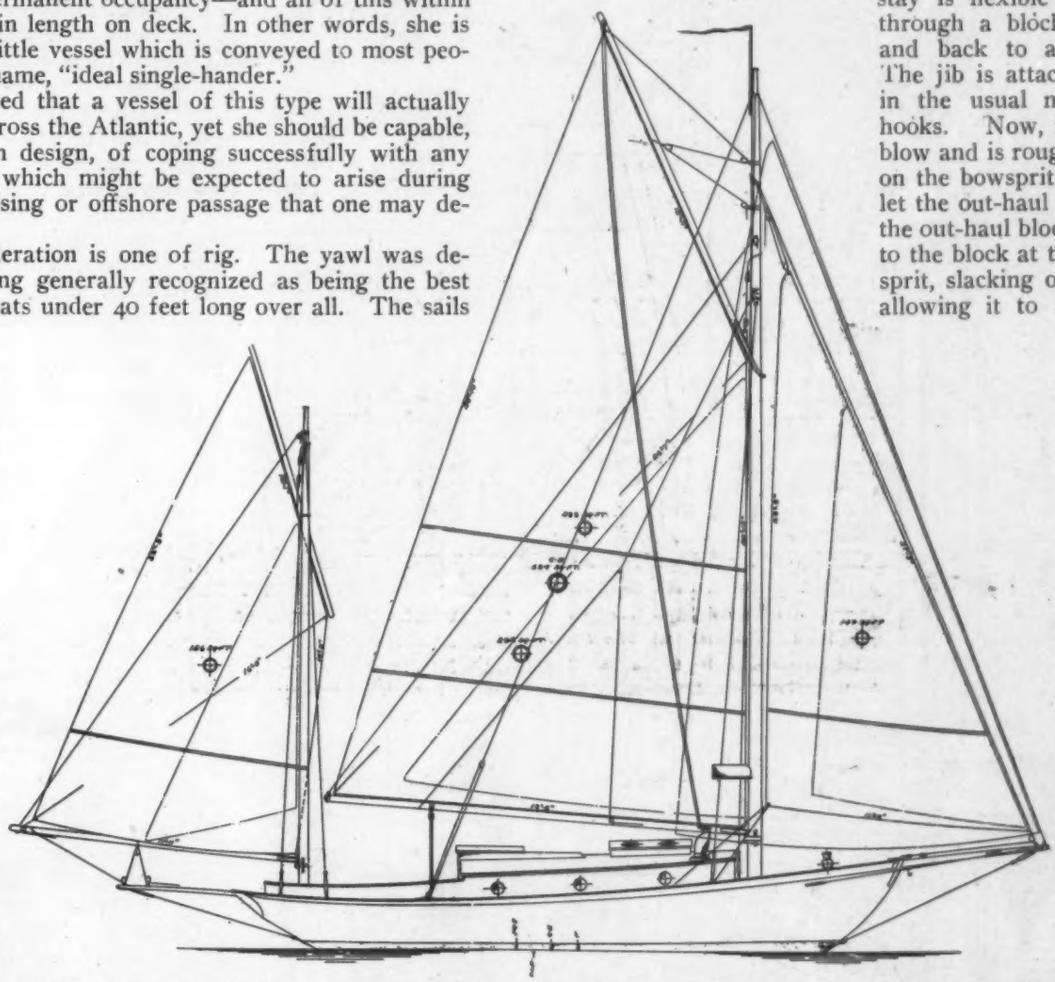
The Ideal Single-Hander

By RALPH E. WINSLOW, N.A.

THE qualifications set by the editor of YACHTING for this design, which is the first of a series of "ideal boat" articles and designs, are as follows: The boat must be capable of being handled by one man (including reefing), but must have comfortable accommodations for at least two; she must be an excellent sea boat, yet able to make good speed under sail and to go to windward against a head sea; her accommodations and tank and locker capacity must be such as to permit of a long cruise or permanent occupancy—and all of this within a limit of 30 feet in length on deck. In other words, she is to be the sort of little vessel which is conveyed to most people's mind by the name, "ideal single-hander."

It is not expected that a vessel of this type will actually be called upon to cross the Atlantic, yet she should be capable, structurally and in design, of coping successfully with any of the conditions which might be expected to arise during any coastwise cruising or offshore passage that one may desire to make.

The first consideration is one of rig. The yawl was decided upon, it being generally recognized as being the best cruising rig for boats under 40 feet long over all. The sails may be so designed that they will be nicely proportioned for beauty and shaped so as to drive the boat well under all kinds of winds and be easily handled for reefing or taking sail off entirely. It is also possible, without spoiling the appearance, to get sufficient sail to drive a fairly wide boat, while the masts are far enough apart to get a good, long cabin.



A few unusual and interesting features have been used in designing the rig for this boat, the first being to put the main sheet away from the end of the main boom, thus preventing straining the boom as much as possible and keeping the main sheet within easy reach of the helmsman. A down-haul on the gaff is shown which will help to get the sail off in case of a sudden squall, when it is very annoying to have the sail stick halfway down.

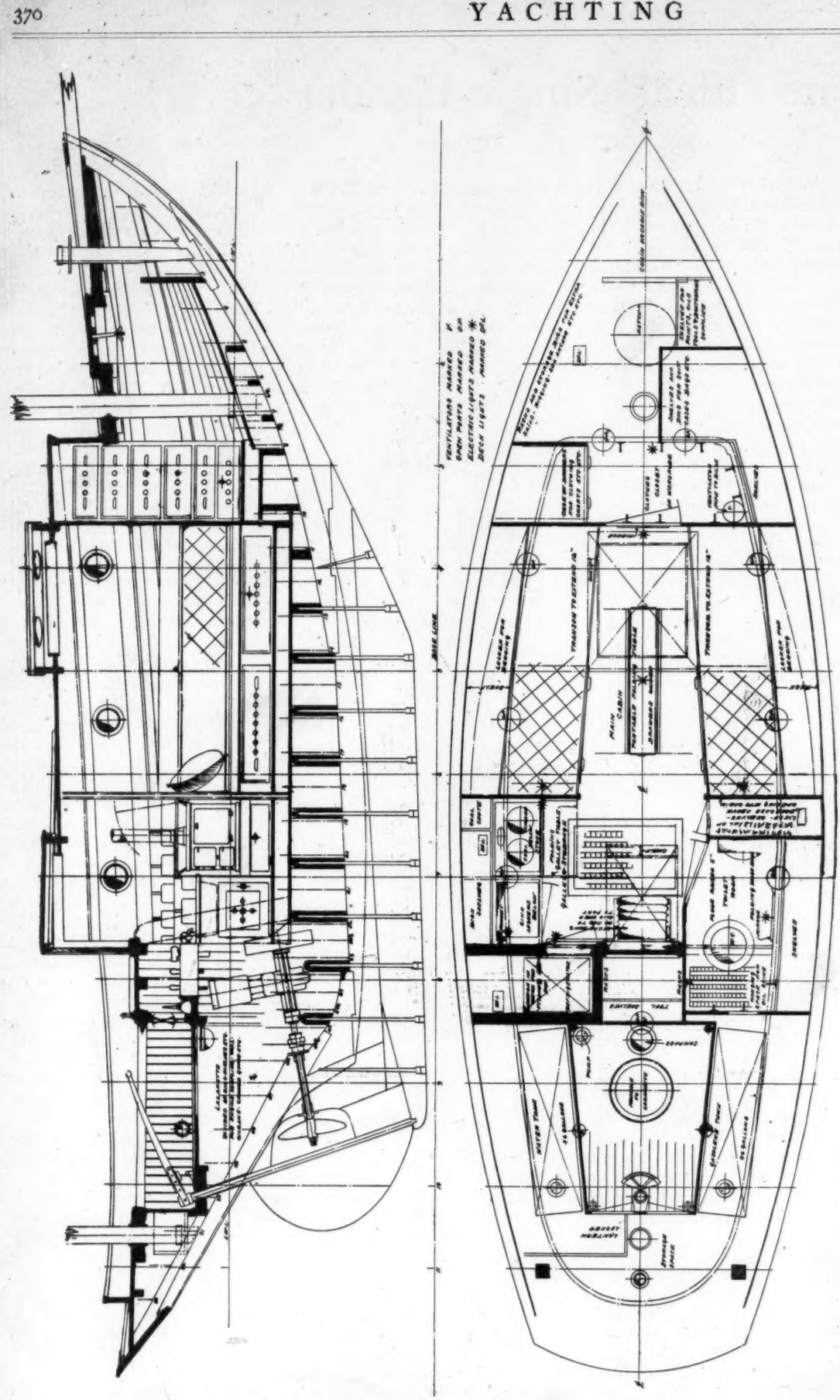
The mizzen is different from the gaff sail usually seen on yawls, and is of the balance lug type. Having only one halyard, it is hoisted easier than the ordinary gaff. It is also loose-footed, with an out-haul on the end of the boom. To lower and take in this sail one does not have to get off the boat at all; simply let go the out-haul and gather in the sail, and then lower the gaff or yard. The whole thing may thus be taken in without getting out on the boomkin or outrigger. The lug mizzen also has the advantage of requiring no strut on the forward side of the mizzen mast, as there is no pressure to amount to anything at the place where the jaws would come. The mainsail is of regulation type, which seems to be the proper thing for most boats, drives well, and looks well. The rigging for the mainsail has been made as simple as possible, while double topping lifts are used, and lazy-jacks to assist in lowering, reefing and furling.

The head sails are rigged in a slightly novel way. The main mast is carried up a little above the peak halyard block, and there are two headstays—or, rather, a jib stay and a headstay. The jib stay is flexible wire, which runs through a block on the bowsprit and back to an out-haul tackle. The jib is attached to the jib stay in the usual manner with snap-hooks. Now, if it comes on to blow and is rough, making working on the bowsprit dangerous, simply let the out-haul go at the cleat and the out-haul block will run forward to the block at the end of the bowsprit, slacking off the jib stay and allowing it to fall back onto the deck, when the jib may be taken off the stay in the usual manner; but the man doing it remains on deck, just the same as if on a knockabout.

Another thing we note on this cruiser: A sensible man will make the most of a reaching breeze; and, as a yawl's strong point is reaching, the mast head and bowsprit have been extended slightly, so that a large balloon jib can be used, and this sail is a great puller in a good quartering or beam breeze. Backstays will, of course, have to be carried, but will not need to be used except when reaching with the ballooner or before the wind, and then only in very strong breezes. The balloon jib may be also used as a spinnaker.

The sail area has been kept moderate, and, at the same time, is large enough to keep her from being a sluggish tub, which is the case with some cruising boats. It is not advisable to put large sail area on an auxiliary cruiser, on account of its constantly needing reefing if it blows more than an ordinary sailing breeze, and also because, if the wind is light, you can go faster under engine power than under sails, especially if beating to windward.

All jibs are loose-footed, to handle more easily, and personally I believe they set almost as well as the ones with clubs; indeed, some racing owners prefer them. The other sails carried are storm jib, main trysail and mizzen trysail. The trysails will be very useful if it ever becomes necessary to lay hove-to to weather a gale.



ACCOMMODATION PLANS, IDEAL SINGLE-HANDER

All spars and rigging are a little heavier than is absolutely necessary, as it is very unsafe to have rigging part, bind in blocks, or even to have constantly to favor the boat in order to keep her spars in. There have probably been more accidents from too light upper works than from all other causes put together.

The sail area is of fair size—684 square feet, divided as follows: Jib, 140 square feet; mainsail, 388 square feet; mizzen, 156 square feet, and mizzen and jib, 296 square feet, so that with the jib and mizzen she will have a good spread of canvas.

The next consideration after the rig has been thought out is what kind of a hull to put this rig on, the over-all limit being 30 feet. We want a boat that can be handled by one man, if necessary, in all weather conditions; also, one that will be able to sleep from one to four persons, with room for more on deck for afternoon sails, as we shall not be cruising all the time.

As a matter of fact, a boat 30 feet on deck and 30 feet on the L. W. L. would give the most room; but she would be unsightly and require large sails, heavy construction, lots of ballast, and, besides, would be too much boat to be handled easily by one man. She would also probably not be as good a seaboat as one with moderate overhangs, as has been demonstrated by our modern fishermen and English pilot cutters, all of which have moderate overhangs. The overhangs should not be as long as found on our so-called fast cruisers and raters; not that moderate or fairly long overhangs are not handsome or make poor seaboats if properly designed, but if she were to have long overhangs it would make a waterline of only about 19 feet, and this would give us a boat having too small a cabin. Displacement, sail area and beam being the same, she would not be as fast as the design shown, or as good a seaboat.

A keel boat was decided upon as being the best all-round cruiser, especially where some real ocean work is to be done. Still, the draft of 4 feet 10 inches is not excessive for most harbors, especially with an engine to help in crooked channels. A keel boat holds on in rough water better than most centerboards

(there are, of course, exceptions), and is surely stiffer, especially in wide angles of heel, and gives one a sense of security in a breeze not felt with shoal draft boats. It is also desirable to have a boat which would not sail on her side all the time and throw everything below to leeward, as well as make the crew hang on all the time. Beam means room and comfort below; so the beam was worked out to be 9 feet 5 inches, which is generous, yet not so much as to make her tubby. Length of the waterline was worked out to 22 feet 7 inches, which gave us just the right length to get the necessary room for the interior arrangements without producing a boat too large to handle easily. It gave easy, graceful, buoyant overhangs, neither too long nor too short, and made a boat which would have displacement and size that would be easy to handle with a small crew.

The next thing to determine was the sheer and freeboard. She has quite a lot of sheer and freeboard—which should be the case on all ocean-going craft to make them dry and comfortable. The freeboard at bow is about 3 feet 10 inches and to the top of rail 4 feet 3 inches, while amidships it is 2 feet; so that it would have to be quite rough before any solid water would come aboard, and in ordinary breezes there would be considerable freeboard to spare at a good angle of heel.

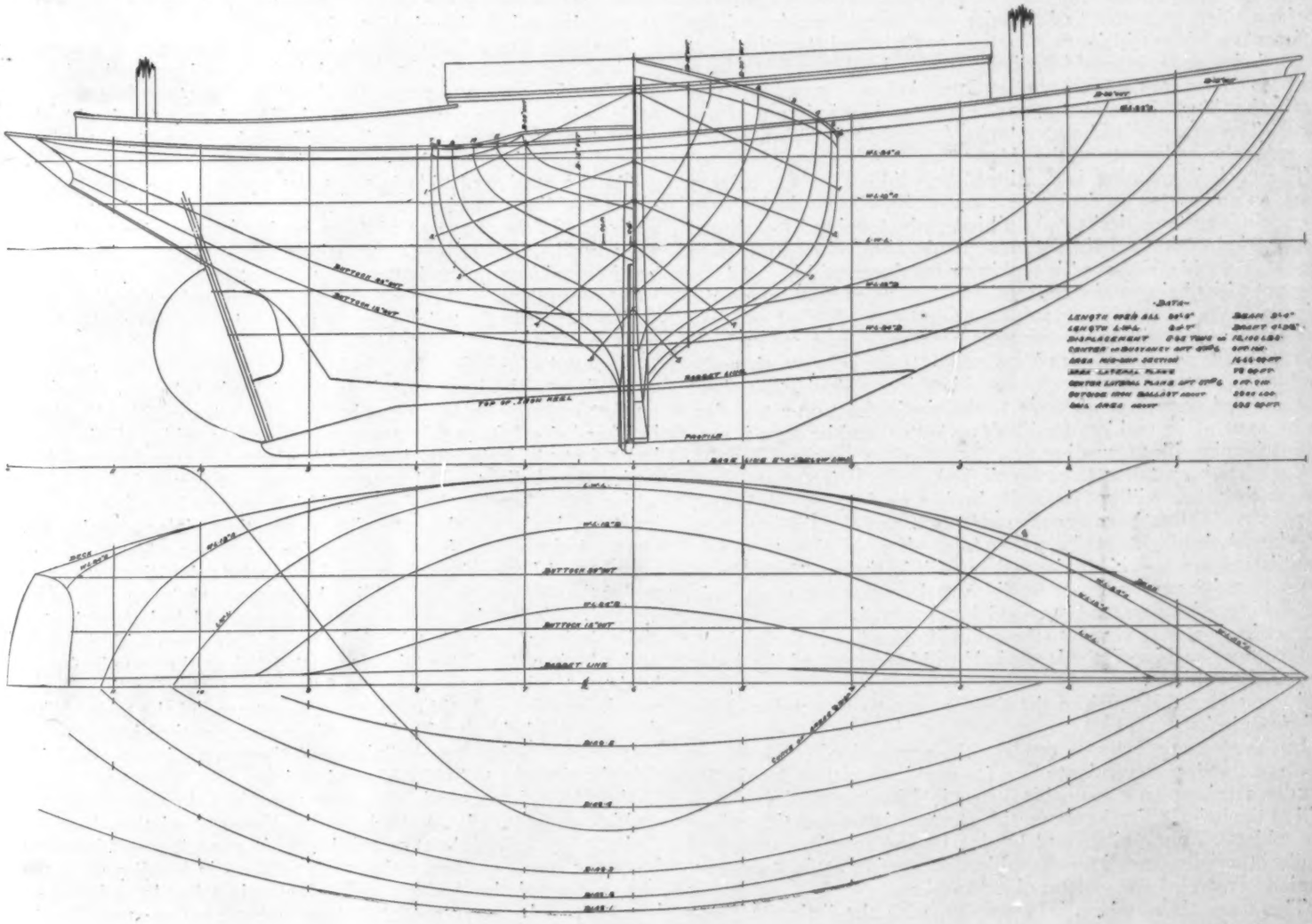
The forward sections are nicely shaped, to let the boat rise and fall easily, and are also buoyant enough to stop excessive plunging and throw off spray. The 'midship sections have considerable dead rise and a good bilge; should make a boat that is stiff and able, and one that would roll easily, with no jerky motions, while aft the sections have been fined away sufficiently to give the nice run and pleasing counters of a craft which will steer well in a following sea.

As to the choice between a canoe or transom stern, I believe the transom stern, if properly designed, is rather the better, as it gives more deck room and initial stability and spread for the mizzen rigging. The lateral plane has not been cut away excessively, and the forefoot is fairly deep, to keep the boat from falling off in heavy seas or when hove-to. The keel bottom has been kept straight with some drag to help steering, and also to simplify construction and make docking and hauling easy.

Looking at her underbody, one will see that the displacement has been kept well aft. This has been done in order that the weights of engine, supplies, water, gasolene, crew, galley, toilet, etc., may not put the boat by the stern, while at the same time it was desired to have these weights aft, so as to keep the bow as light and buoyant as possible. It also allows the boat to be nicely modeled forward with sharp (though not too sharp), easy sections and entrances.

She is a fair model, easy to drive, but stiff, able and buoyant, either under sail or power, or both. Her outside ballast will be an iron casting of 3,900 pounds (or lead, if the owner can afford it), which runs the entire length of the bottom of the keel, and will make the boat entirely uncapsizable and protect the hull in case of accidental grounding. There will also be about 900 pounds of trimming ballast inside, as it is not advisable to carry all the ballast outside, since the very best trim for a seaboat can be only obtained by experimenting with the boat under different conditions. With this amount of ballast—4,800 pounds—and her beam and displacement of 13,000 pounds, she would be very stiff, even with a fair spread of sail.

The next thing that one studies after the rig and model of a boat is the deck arrangement. The first thing necessary on a



cruiser is a good rail, so that things laid on deck will not slide overboard at the slightest provocation; therefore, I have shown fairly high but not unsightly bulwarks.

The house will be very strongly built and square on the front end, to simplify construction and increase room below, and is 12 feet 6 inches long and 6 feet 9 inches wide amidships. This gives a deck on either side of 16 inches, which is sufficient for going forward. It was not considered advisable to spoil the arrangements below by making the decks extremely wide, especially with the good rail and hand rails on the trunk house.

On the forward deck is a round hatch, to give access to the fore peak, which is especially designed to be watertight by use of clamps and soft rubber gaskets. There will be a number of deck lights set in to give light to dark places below.

Aft of the trunk deck house is the bridge deck, 22 inches wide (covering three deck beams), which will strengthen the boat remarkably and give extra cockpit space. This bridge deck is 6 feet 3 inches wide between coamings, so a person could sleep or rest there. The mainsheet cleat and traveler are also on this deck. The decks are built in to form the cockpit seats; thus the actual cockpit is very small, about 4 feet 6 inches by 3 feet, and is sunk about 17 inches, the floor being about 10 inches above the load waterline.

In the floor of the cockpit is a deck light, under which is the compass—which should be electrically lighted: there is also a watertight brass manhole in the floor, to give access to the lazarette. The bilge pump discharges into the cockpit, the latter being drained by four good-sized scuppers, one in each corner. The method of steering shown is by tiller, although many might prefer a wheel, which could be used, if desired. Personally, I prefer a tiller, on account of the nice steering one can do and the different positions which one can stand or sit in and steer the boat. A comb is shown into which the tiller may be dropped, to keep the boat on her course without attention. When dropped into this comb, the tiller will be almost on the floor and entirely out of the way. The gasolene and water tanks (36 gallons each) are built in under the deck seats on the sides.

The cockpit coaming is continued around aft of the mizzen mast, so any water on deck would not ordinarily get inside onto the cockpit seats or decks. As all halyards, topping lifts, sheets, etc., are led to the cockpit, the boat may be handled entirely from here. A double V-shaped boomkin or outrigger will be used, on account of its being easier to stand or sit on when working on the mizzen.

The bowsprit will be strong and extra wide, so as to make it easy to walk on; it will also have extra strong bobstay, shrouds, foot ropes, etc. After careful consideration, a double jib sheet was decided upon in preference to the single sheet on a traveler, on account of its making the jib draw better, and because it permits trimming jib to weather.

Care has been taken to make all deck fittings strong and simple, so that they will not be easily broken or damaged by boarding seas. All lights are open, round ports, and the skylight is of wood, with deadlights set in, and no large pieces of glass to smash. Ventilators are provided where they will do the most good, and the companionway doors are in slides to drop into a groove, as in the fishing schooners and forward hatches of large yachts, thus preventing water getting into the cabin if a sea floods the cockpit. If the upper half is off, the lower half will keep most of the water out of the cabin.

After seeing this much of the ship one naturally wonders what is below decks.

In the steerage, after descending the companion, one sees, on the port hand, a convenient place for cooking, so that the single-hander can keep an eye on this domestic department whilst he is still at the helm. Furthermore, this steerage is a convenient place for taking off one's oilers and leaving behind any dampness that might otherwise come into the cabin. A grating at foot of companionway drains any moisture into the bilge.

There are times when, in a seaway, with the little craft endeavoring to stand first on her head and then on her tail, it is trying, even to the most hardened, to have to go forward either to attend to the stove or to get out the side-lights. Many a professional seaman succumbs under these circumstances. But with such an arrangement as is here shown everything is at hand where it is most likely to be wanted.

Starting aft under the after deck, on the starboard side is space to carry the folding bucket, mop, extra lines, lead and line, etc., while on the port side is a lantern locker lined with metal, with compartments for oil can, lantern, waste, etc., thus keeping all kerosene out of the cabin and having lanterns where they may be cleaned and filled out of doors. Under the cockpit floor is the lazarette, which could be fitted with bins for canned goods, rope, coal bags, oil cans and many other things which dampness will not affect.

Now step into the companionway and go down the steps into the cabin; do not lift the steps, but slide them to port on the rod they are hung on, and let us look at the engine. It is a one-cylinder, 2-cycle, make-and-break of the latest type, designed especially for use by auxiliaries. It needs no reverse gear, as it runs both ways. It turns a large, two-bladed propeller between 400 and 450 revolutions per minute and develops from 5 to 7 horsepower, and gives the boat a speed of about 5 miles an hour.

Shove back the ladder, open the ice box and look in: we do not have to bring the ice into the cabin and wet everything, but let it down through a hatch in the bridge deck. On the same side there is an enamel sink—and, by the way, water flows by gravity to the sink. Next to this is space for either a coal or kerosene stove, and back of the stove is a coal chute, so that coal may be dumped into this chute and fall into the coal locker, under the stove, whence it is shoveled into the stove.

The space around the stove is lined with copper over asbestos. Back of the sink and stove are dish lockers, and under the sink is a locker for pots and pans. In front of the stove is a folding table, which drops down from the bulkhead on a level with the stove top and serves as a galley table and a place to put things when being mixed or when taken off the stove.

On the starboard side is the toilet room with a knockabout closet, folding washbowl, with running water, towel, etc., and shelves. In the after end of this room is a space under the bridge to hang oil skins, sea boots, etc., with a grating floor, so any water on them will go to the bottom of the boat and not stand on the toilet room floor. There is 6 feet headroom under the slide, and, with a mirror in the toilet room on the trunk side, one could shave with comfort.

Forward of this is a food locker for groceries and dry articles extending to the level of the deck and having the top left open on the forward side to make a bookshelf for the cabin. Partially bulkheaded off from this steerage is the main cabin. This room has 5 feet 7½ inches headroom in the lowest part and over 6 feet under the skylight. It has two transoms, 2 feet 7 inches wide, which extend and make double-width transoms by using the upholstered backs for the extension pieces, thus giving sleeping accommodations for from one to four persons. Back of the upholstered backs there is room for blankets, bedding, etc., and under the decks, over the bedding lockers, are shelves or racks, as desired. Under the transoms are drawers and lockers. A specially designed portable table is built into this room with drawers under both ends. This table is constructed so that one leaf may be down to give a passageway and the other one up so that charts may be studied and still leave room to get around the table. The drawers will hold all table linen, silverware, nautical instruments, etc. Small shelves are built around the companionway and inside the skylight to hold odds and ends.

Now look forward: in the door there is a full-length mirror (which ought to please the ladies). Forward of this door we find a large clothes closet or wardrobe big enough to get into and hang our decent clothes, rather than tie them in bundles, as is the case in most clothes lockers. This locker is 2 feet by 4 feet, and is ventilated by ports, so that things will not get musty.

On the port side of this wardrobe is a case of drawers to put charts (folded flat) into, and also shirts, collars, socks, etc.

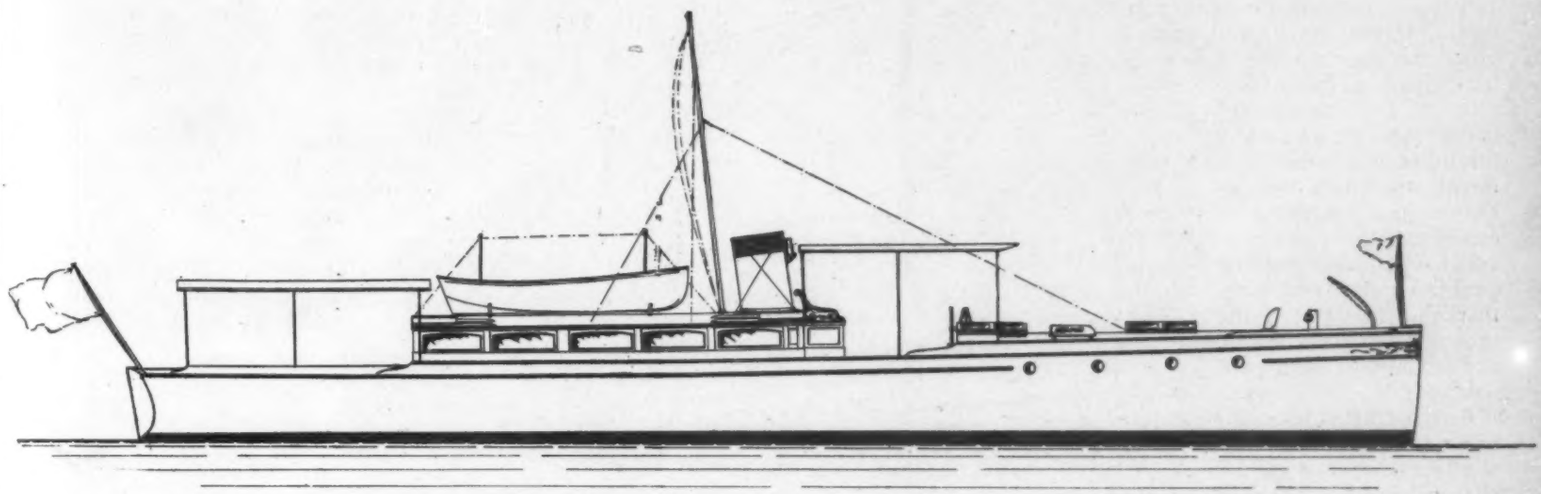
On the starboard side forward are shelves and bins for bags, suitcases, etc., and still further forward are shelves for paints and boatswain's supplies; while on the port side of the forepeak will be built, as directed, racks and hooks for rigging, sail storage, sea anchor, and like stuff. In the extreme bow is a chain-and-cable locker or bin.

Especial attention has been given to ventilation, and all drawers, lockers, etc., have ventilating holes. A cowl ventilator will be installed with pipe leading to bilge, so that fresh air will go through the entire length of the boat and drive out any gasolene vapor or other dangerous or disagreeable odors.

While all designers may not agree with me, I think that she would stand as much rough weather as many a larger boat, and would be fairly fast—a good boat for real ocean racing, and one which we admire on account of her beauty and ability to take the crew there and back again without fail.

Her construction should be extremely strong, but not necessarily cumbersome, though well proportioned for equal strength in every part. While it is not necessary to go into the most expensive fittings and materials, everything should be of the soundest, and the workmanship honest throughout. Then the boat would last for many years and be the pride of many owners.

She is about the largest size of boat that may be handled easily by one man without making too much work out of the pleasure, and will have fair speed in anything but very light airs, and probably be a surprise when it blows hard.



A New Express Cruiser

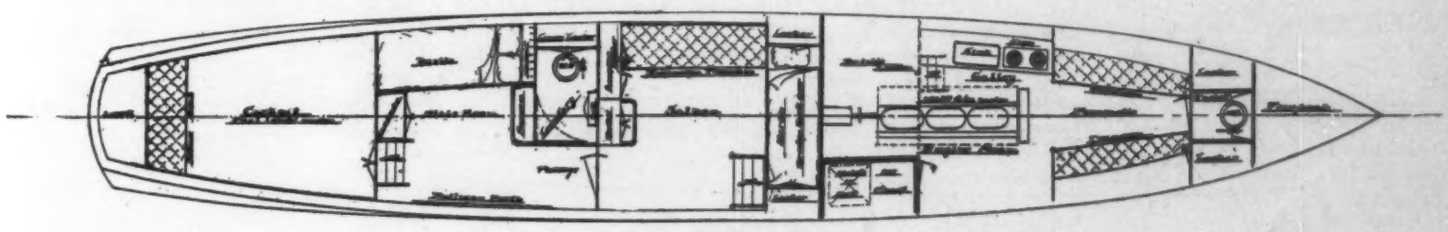
THE accompanying plans are those of a new type of express cruiser designed by the Electric Launch Company, of Bayonne, N. J., which affords excellent facilities for day service besides providing sleeping accommodations for four persons in the owner's quarters. The principal dimensions are: Length over all, 56 feet; waterline length, 54 feet; beam, 9 feet, and draft, 3 feet. Cedar planking is used below the waterline and double planking of mahogany and cedar above the waterline, with copper fastenings throughout, affording the maximum of strength with the least weight.

Both exterior and interior of the cabin house are finished in mahogany, giving the boat a strikingly handsome appearance. The owner's stateroom aft is provided with one permanent berth on the port side and a folding Pullman berth opposite, while in the saloon two comfortable berths can be made up on the spring cushion transom. The combined engine room and forecastle is forward, under the low raised deck, and between this and the main cabin is a bridge deck, from which the boat is controlled. At the after end of the bridge deck is a mahogany settee extending across the full width of the boat.

The power equipment consists of a 150 horsepower, 6-cylinder engine capable of giving the boat a speed of 20 miles an hour or more, as the engine develops rather more than its rated horsepower. Controls of spark, throttle and reverse gear are located alongside the steering wheel on the bridge deck, making possible one-man control of the boat. A spacious after cockpit is reached either by the side decks or through the main cabin.

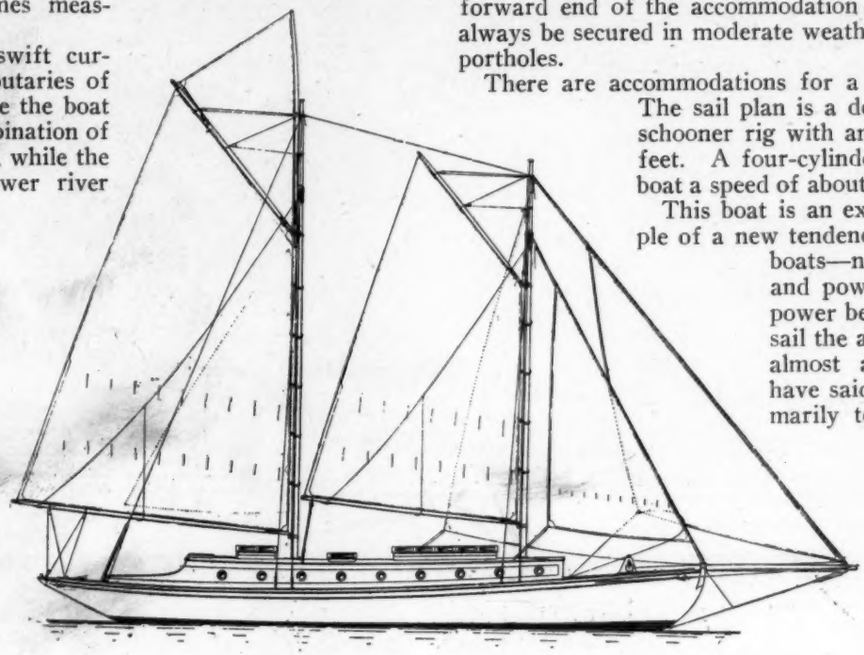
This boat seems admirably suited for use either as a tender for racing yachts or for ferry service. The tank capacity is sufficient to give a cruising radius of over 200 miles.

This is a type of power boat which has become deservedly popular in recent years for ferry service and cruising on inland or sheltered waters. The location of the engine forward under the raised deck keeps all the noise and offensive odor out of the main cabin. It is also much easier to handle the boat skillfully in making landings and maneuvering in crowded places with the wheel and engine controls forward than when they are located in the after cockpit. This last, by the way, is of good length, and, except for a 'thwartships seat across its after end, has been left open for chairs. The boat's high speed should make it a favorite of business men who desire to substitute water for land travel in commuting to their offices in the city.



Auxiliary Schooner for the Rio de la Plata

ACCORDING to our London contemporary, *The Yachtsman*, the auxiliary schooner shown in the accompanying drawings is being built in England from designs by Mr. A. C. Burgoine, of Thames Ditton, for a yachtsman in Buenos Aires. The principal dimensions are: Length over all, 55 feet; waterline, 44 feet 6 inches; beam, 11 feet 6 inches; draft, 3 feet 6 inches. Tonnage (Thames measurement) 26.



The shoal water and swift currents of many of the tributaries of the Rio de la Plata, where the boat will cruise, demand a combination of light draft and good speed, while the broad reaches of the lower river necessitate a fairly able type of hull capable of going successfully through rough water. The degree to which the designer has succeeded in combining these two generally antagonistic sets of qualities becomes more remarkable in view of the schooner's excellent accommodations and appearance.

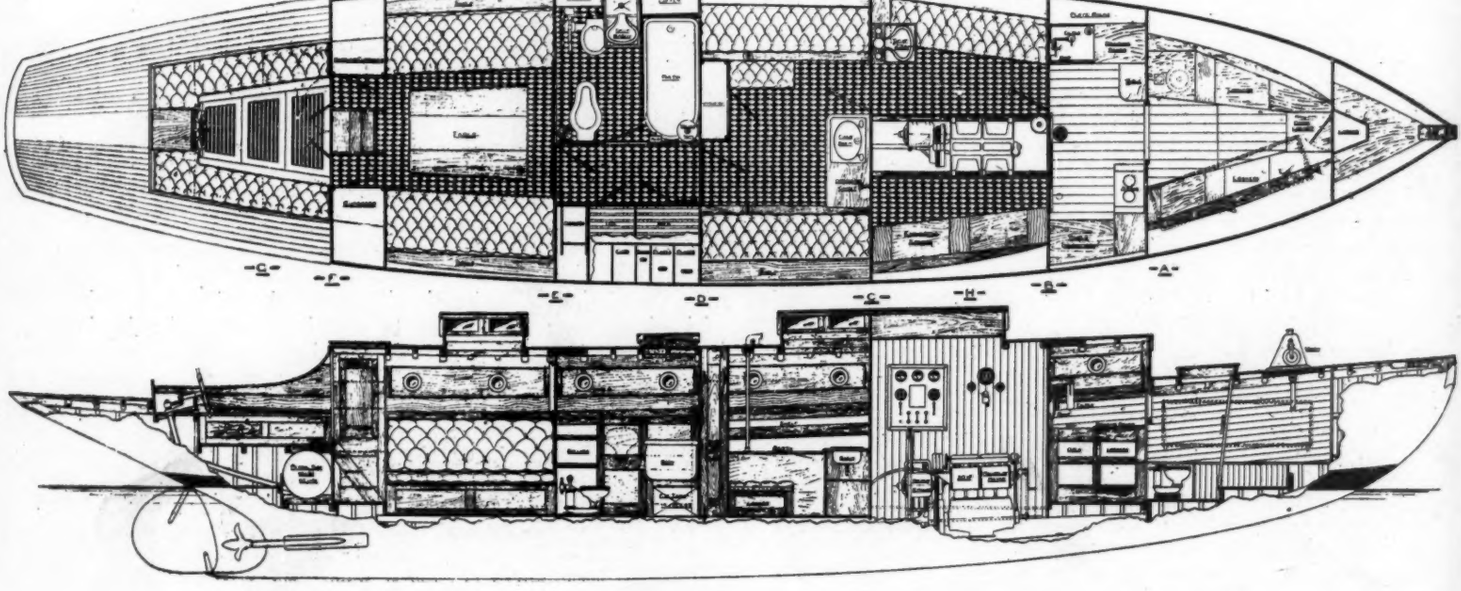
As the draft is not sufficient for satisfactory windward work, a pair of sliding bilge boards have been fitted, which give a maximum draft of 6 feet when down. These boards make no obstruction in the living quarters, as the trunks form the fronts of the berths in the owner's stateroom (see section C, next page). The bilge board pennants run up through pipes to the top of the cabin and are operated from the deck by means of a simple tackle. For this particular arrangement of accommodations they are far superior to a centerboard. The engine room is well forward, and, while large enough for all practical purposes, leaves room for a small single stateroom on the same section. Next aft is a large double stateroom. Then comes an alleyway, with a large bathroom on the port side and an ice chest opposite. The main saloon is at the extreme after end of the cabin.

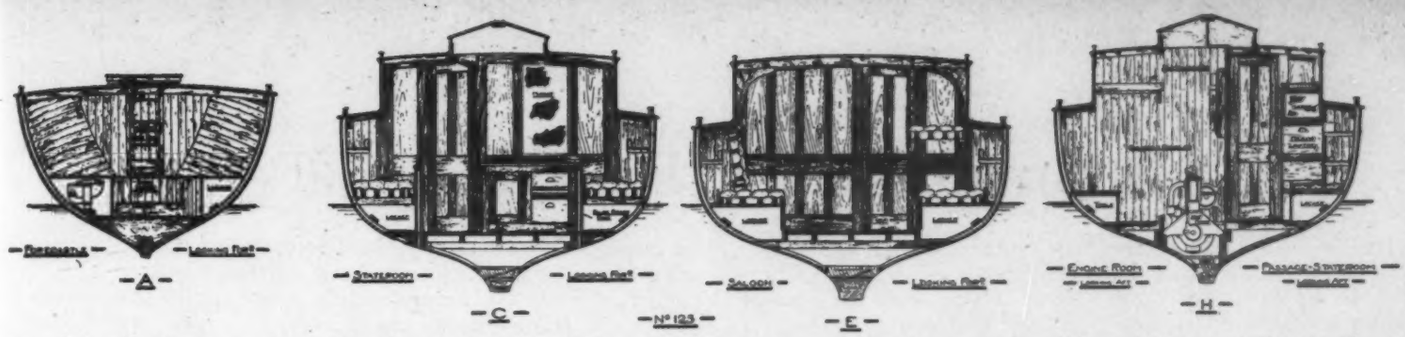
The galley takes the full width of the boat and occupies the forward end of the accommodation plan, where ventilation can always be secured in moderate weather by means of the forward portholes.

There are accommodations for a crew of three in the eyes. The sail plan is a double head sail, pole-masted schooner rig with an area of only 1,200 square feet. A four-cylinder gasolene engine gives the boat a speed of about 8 knots in smooth water.

This boat is an exceedingly interesting example of a new tendency in the design of cruising boats—namely, the combining of sail and power in such a ratio that the power becomes the prime mover and sail the auxiliary. A short time ago almost any naval architect would have said that no boat designed primarily to steam could be made to handle in a satisfactory manner under sail; and, furthermore, that any such boat would be such an insufferably slow sailer that the money put into rig would be practically thrown away.

Lately, however, a few real sail auxiliaries have made their appearance. (See "An Experiment that Succeeded" in this issue.) Although the boat before us has not as yet been tried out, it seems altogether likely that she likewise will be a success. The sections give evidence of good bearings, so that by the aid of her lead shoe for ballast (together with the weight of engine, tanks, etc.) she ought to be able to carry the moderate sail shown above through a hard blow, in spite of the rather narrow

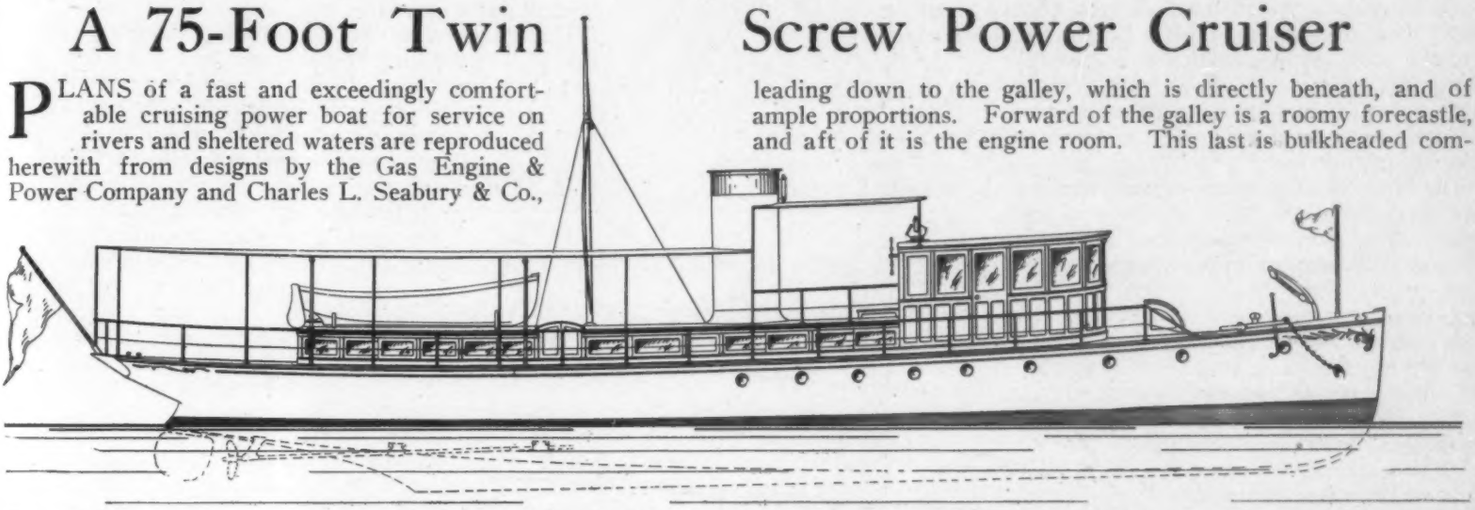




beam. Lateral resistance for sailing is provided by sliding bilge boards, as stated above. The question is chiefly one of securing balance, and for this purpose an adjustable centerboard or bilge board such as is here employed is superior to a keel, since the lateral resistance of the former can be altered to suit changing angles of heel and a varying center of effort of the sail plan.

A 75-Foot Twin Screw Power Cruiser

PLANS of a fast and exceedingly comfortable cruising power boat for service on rivers and sheltered waters are reproduced herewith from designs by the Gas Engine & Power Company and Charles L. Seabury & Co.,

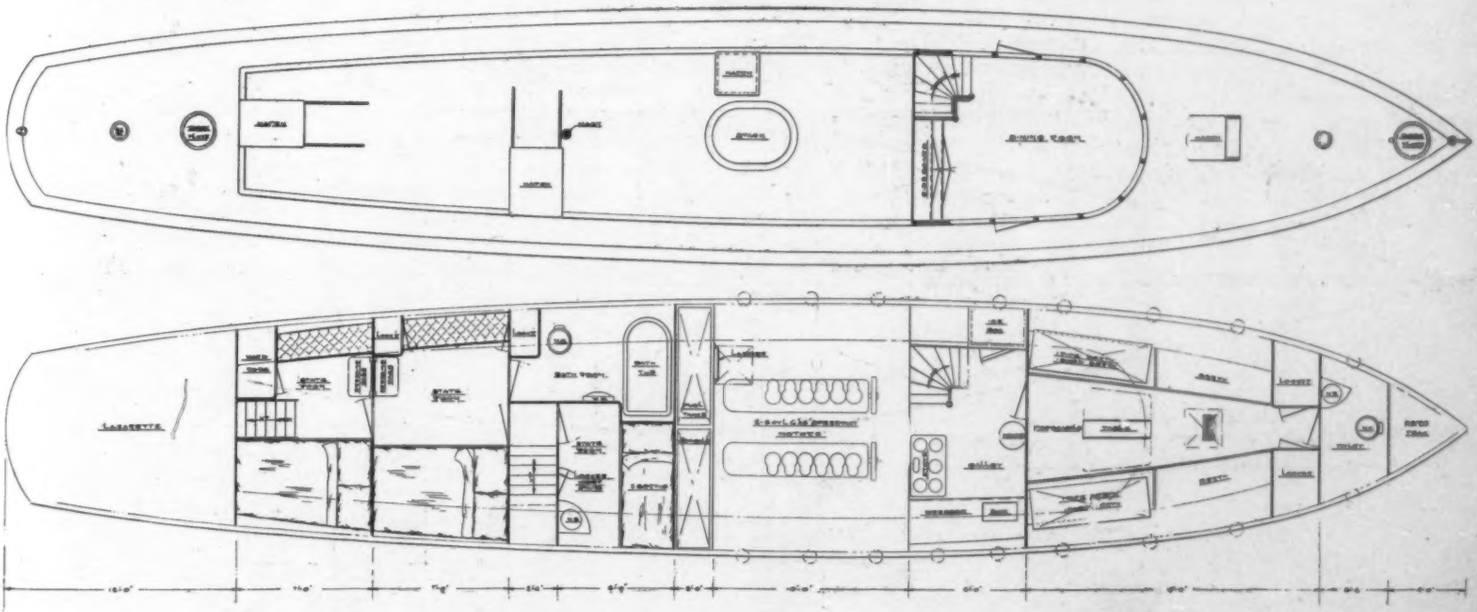


Consolidated, of New York City. The boat's principal dimensions are: Length over all, 75 feet; waterline length, 70 feet; beam, 13 feet; draft, 3 feet 6 inchs. A pair of 6-cylinder gasolene engines of 6 inches bore and stroke, actuating twin screws, will drive the boat at a maximum speed (guaranteed) of from 13 to 14 miles per hour.

As the fuel capacity is 500 gallons, a cruising radius at top speed of about 750 miles will be secured, and this can, of course, be greatly increased by slowing the boat down to a normal cruising speed of 10 miles an hour, which is fast enough for all ordinary purposes.

Forward on the upper deck is a large dining saloon with stairs leading down to the galley, which is directly beneath, and of ample proportions. Forward of the galley is a roomy forecastle, and aft of it is the engine room. This last is bulkheaded completely off from the rest of the boat, and has its own hatch on deck. Next comes the compartment containing the gasolene tanks, and then, in the after part of the accommodation plan, the owner's and guests' quarters. These consist of two double and one single stateroom and a bath. The staterooms are provided with separate companionways, so that each one has access to the deck independent of the other.

The boat is handled from a bridge deck just abaft the forward house, the latter acting as a wind shield for the helmsman. One-man control of the motors is an interesting engineering feature. The hull is to be very substantially put together, and the boat should make a most attractive cruiser for anyone desiring a combination of comfort and speed.



A Small, Easily Built Ice-Boat

THE working plans of the little "mosquito" ice boat which we publish herewith were designed especially for YACHTING by J. L. Foster, of Orcas, Wash., with the idea of producing an easily constructed ice yacht that could be built for very little money and provide lots of sport for one or two persons. Her principal dimensions are: Length over all, 16 feet 3 inches; length of backbone proper, 12 feet 3 inches; length of runner plank, 7 feet; length of cockpit, 7 feet; total sail area, about 130 square feet. The designer has built a boat from these plans, and she has proved remarkably successful, being fast and well-balanced, with a fairly large rig which, in a breeze of the maximum strength for one man, is not too much to take her off her feet.

The dimensions of every part are marked on the plans, together with the material and finish. The sizes of wood shown are for the completed work, not for rough lumber. The quality must be the best.

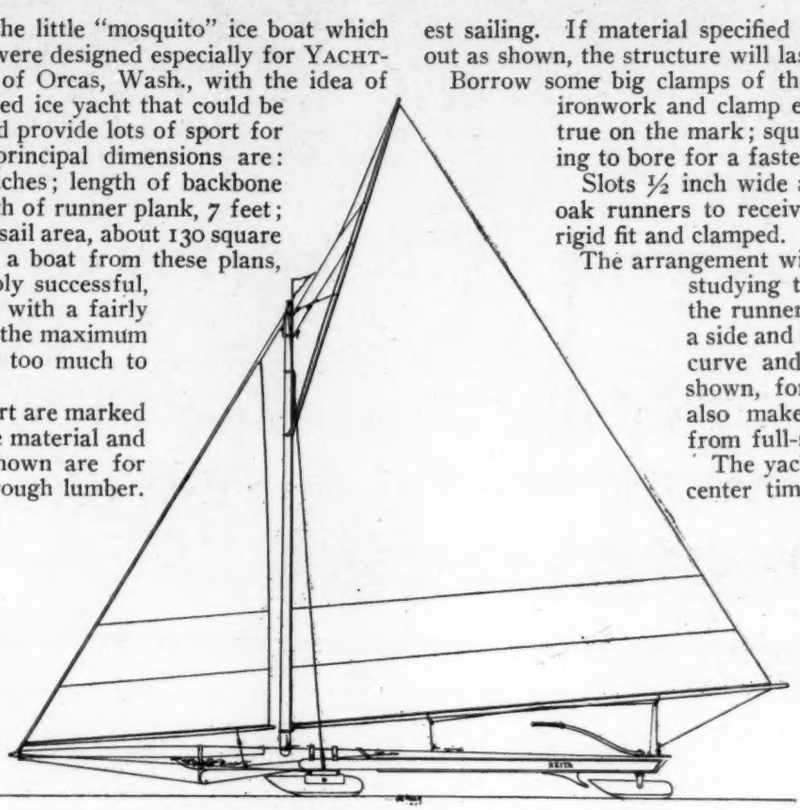
A person capable of building any kind of a boat will find this one easy to tackle. A wheelwright or smith can make the iron work, including the runners, which, when fastened to the oak runners, as shown, make an indestructible job in the roughest sailing. If material specified is used and fastenings carried out as shown, the structure will last a lifetime of winters.

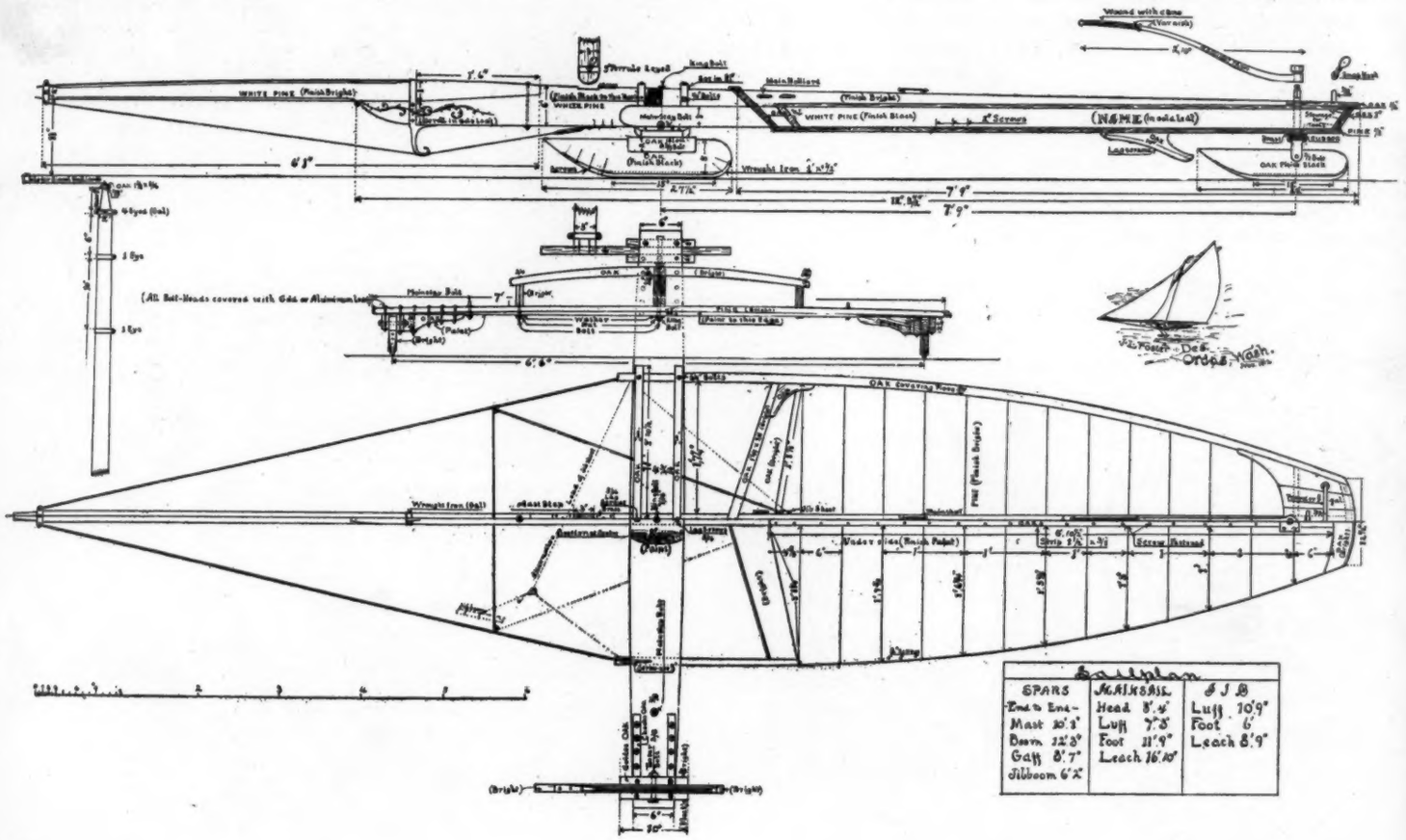
Borrow some big clamps of the wheelwright who makes the ironwork and clamp every two pieces hard together true on the mark; square and plumb before attempting to bore for a fastening.

Slots ½ inch wide are made in the bottom of the oak runners to receive the irons, which must be a rigid fit and clamped.

The arrangement will be readily comprehended by studying the side and end elevations of the runner. Make full-size drawings of a side and steering runner, with the bevel, curve and change of width drawn as shown, for the wheelwright, who can also make the other simple ironwork from full-size scale drawings.

The yacht's running depends upon the center timber and runners crossing the runner-plank at true right angles, and great care should be taken to have latter parallel. If they diverge even slightly the boat will run poorly, particularly in light airs. When filing the runners in the season see that the edge of each is straight—a keen line down center—for a wavy edge slips, causing leeway and





loss of speed; and, as the yacht is not then under control, she is dangerous to handle.

All bolts have the nuts screwed over washers. The tiller, mast and bowsprit ferrules, gammon iron and the traveler are better galvanized.

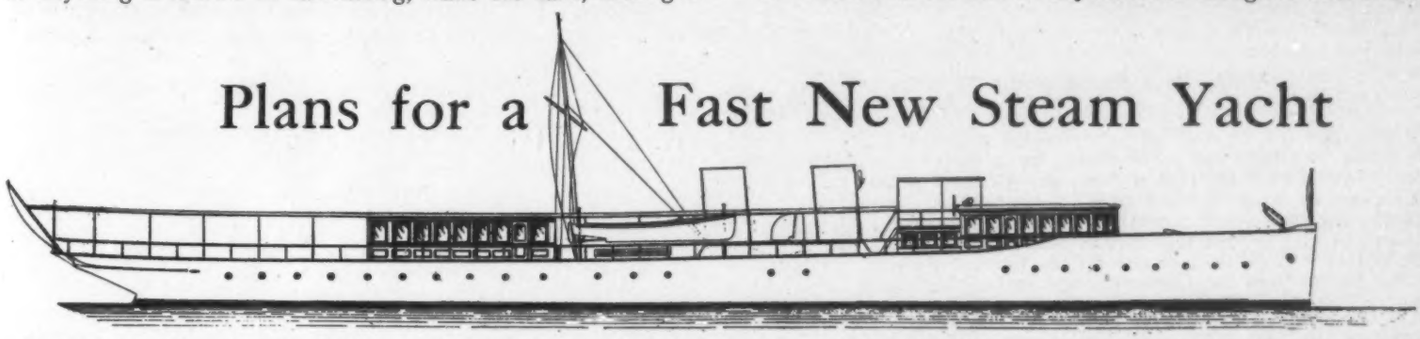
The stays are 3/16-inch galvanized wire rope, the running rigging ¼-inch preferably white cotton, as it is more tractable in cold weather than manila and looks better. The sails are made from heavy yacht-drill, with reefs as shown—they will be needed—and should be flat, with no flow at all.

If anything is known of sailmaking, make the sails, cutting a little smaller all around to allow for stretch. But as so much of the success depends upon a proper fitting suit of sails, better give the sailmaker the job.

The black finish is made by painting on the sandpapered wood where indicated three coats—two, if pushed—of drop-black ground in Japan, thinned with turpentine, rubbed, when dry, with sandpaper (00), except the last coat, and after allowing several days' time to dry between each coat varnish with spar-varnish. Also varnish mast and spars. Bottom to be painted three coats—gray contrasts well with the bright wood.

This little boat can run on any ice thick enough to bear skaters.

Plans for a Fast New Steam Yacht



MESSRS. COX & STEVENS have just placed an order with the builders for a high powered steam yacht from their designs, which will be delivered to the owner, a prominent New York yachtsman, on or before Decoration Day.

The dimensions of this new vessel are: Length over all, 163 feet; length on waterline, 153 feet; beam, 18 feet; draft, 7 feet. The contract speed of this vessel is 22 knots, and the motive power consists of two 4-cylinder, triple-expansion engines, supplied with steam by two water-tube boilers using oil as fuel.

The use of oil fuel in place of coal has for some time been practically universal on naval vessels of all sorts, and has also been largely used in commercial vessels. It is but recently that yachtsmen have been able to appreciate its advantages. The adoption of his system of firing on this boat shows that the more or less experimental work in the Winchester, also a Cox & Stevens design, has been looked upon with favor by intelligent yachtsmen.

An inspection of the plans of the new boat shows a vessel of striking appearance. The stem is straight, the stern has a finely proportioned overhang, the sheer is very slight—producing a smart effect—and being associated with a gradual rise forward into a high bulwark, gives the vessel a very considerable freeboard forward, which is an absolute necessity when running at high speed, particularly into the short head seas which she is liable to encounter in her general service. The vessel is flush decked throughout, has two funnels of large size situated slightly forward of amidships, one signal mast and two large deck houses.

The forward deck house contains a large dining-room. At the after end of the dining-room is the pantry, this room also being in the deck house, as is the sailing master's room, which is on the port side opposite the pantry. The galley is at the extreme after end of the forward house, and is depressed about two feet, forming a protected navigating bridge. The owner is served from the galley directly through the pantry, while the food for the crew is taken from the galley by a separate stairway directly down into the officers' and crew's quarters, which are on the berth deck forward.

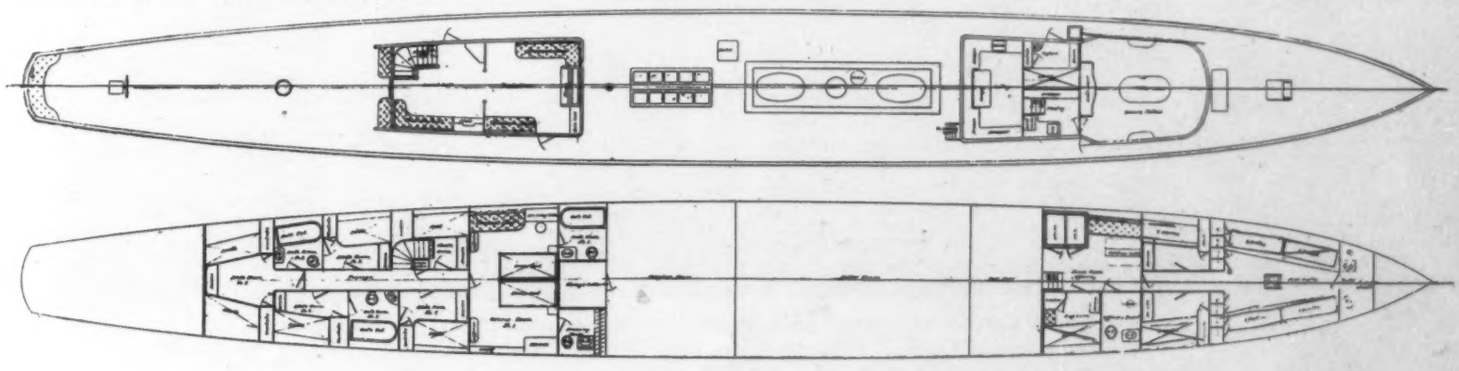
These quarters consist of a separate stateroom for the chief engineer, two double staterooms for other officers, a large, comfortable mess room for the officers, and also a separate lavatory with shower, wash basins and toilet. The crew proper are berthed in the forecastle, where there are eight pipe berths and mess room, and a wash room fitted up in the same manner as the officers' lavatory.

The engine and boiler space is placed practically amidships, and is separated from the forward and after quarters by athwartships fuel tanks of large capacity, acting as additional watertight subdivisions, and, moreover, practically cutting off all the noise and heat of the engine and boilers from the living space.

The after deck house is unusually long, and is divided into two sections by means of portiers, forming a music room and a smoking-room.

An inspection of the arrangement of the quarters below for the owner and guests shows that great care has been taken to utilize the space to the best advantage. The after companionway lands in a passageway running fore and aft. At the forward end of this passageway a door communicates with the owner's stateroom, which is 11 feet in length and the full width of the ship. This room has a private bath communicating with it.

At the after end of the passageway is a comfortable double stateroom extending the full width of the vessel. Between this double after stateroom and the owner's room there are, on the starboard side of the vessel, two large single staterooms, and on the port side of the passage there are a bathroom, a large single stateroom for guests and a smaller single stateroom. The finish in the guests' quarters throughout will be Colonial in character, doors, furniture and trim being of handsome figured mahogany, bulkheads and ceiling being finished in white enamel.



Mess Room Talk

IN this Department we will answer questions concerning the problems which boat owners are constantly running up against in the operation of their motors or the handling of their boats. Theoretical as well as practical questions will be answered promptly by mail, and when of sufficient interest will be printed for the benefit of YACHTING readers. This service is free. Don't hesitate to make use of it. Address, Information Department, YACHTING, 141 W. 36th St., New York City.

Bermuda Race Measurement Formulæ

CHICAGO, ILL.

I take pleasure in studying your articles on stability, etc., of boats, both power and sail, and am working out a design for a power boat 42 feet 6 inches over all, 11 feet beam and 3 feet 9 inches draft, similar to a design by Crowninshield of a 30-footer shown on page 510 of YACHTING for June (yawl rigged).

Can you give me the formula for measuring boats for the Bermuda races, as I wish to get the best rating I can, figuring my boat on that basis, carrying enough fuel for 1,000 miles and rations for six men for thirty days. A. R. T.

The formula and principal restrictions follow:

1. Measurement.—Boats shall be rated for classification and time allowance by a rating which shall be determined by taking eighteen times the cube root of the square root of the load waterline, multiplied by the horsepower and divided by the area of 'midship section.

$$\text{Rating} = 18\sqrt[3]{\frac{\sqrt{L.W.L.} \times H.P.}{M.S.}}$$

The result is the measurement for classification and time allowance.

2. Load waterline shall be the distance in a straight line between the points farthest forward and farthest aft where the hull, exclusive of the rudder stock, is intersected by the surface of the water, when the boat is afloat in racing trim, in smooth water.

If any part of the stern, stern post or other part of the boat below the load-waterline projects beyond the length thus measured, such projection shall be added to the measured length; and a form resulting from the cutting away of the fair line of the stern, stern post or the ridge of the counter, for the apparent purpose of shortening the load-waterline, shall be measured between fair lines.

3. 'Midship Section.—To be expressed in square feet.

4. Horsepower.—The horsepower of all motors shall be obtained as follows: Gasoline explosive motors to be calculated by multiplying (A) the area of one piston in square inches by (N) the number of pistons receiving direct explosions, and dividing by (C) a constant $\frac{A \times N}{C}$.

In engines of less than 6 inches stroke the formula should be $\frac{A \times N \times S}{C}$; S being stroke in feet.

The constant in racing boats shall be 2 for four-cycle engines, 1.65 for two-cycle engines having 6 inches stroke or over, and in engines having less than 6 inches stroke of piston the constant for four-cycle engines shall be 1, and for two-cycle .85. In all other boats the horsepower shall be taken at two-thirds of that given for racing boats.

The full racing measurement rules and time allowance table may be had in the American Power Boat Association yearbook, published by the association and sold for a small consideration by the association (Mr. M. M. Whitaker, Nyack, N. Y.)

Sails may be carried in the Bermuda race, but must not exceed in square feet the square of the over-all length divided by 8.

Power Boat for Family Use

TOLEDO, OHIO.

I am thinking of purchasing a power boat for family use on Lake Erie, and should like to have you advise me as to the kind of craft, size, power of engine, etc., that would be desirable. I think I should like a boat that would carry about twelve people with a fairly good engine that will carry the load without extra exertion, and at the same time strong enough to do a little tug work if necessary. I should be very much pleased to receive your information concerning the same. C. H. P.

In reply to your favor, I believe the type of power boat suitable for your use would be the open "family" boat. The hull of such a boat should be substantial, seaworthy and fairly heavy, and I would suggest dimensions of about 30 feet in length by about 6½ feet beam.

An automobile top may be used, but I recommend the installation instead of a permanent canopy top, raised a sufficient distance above the floor of the cockpit to insure plenty of head room. Stout canvas curtains may be used in conjunction with this top to enclose the boat in rough or rainy weather. The seats may be arranged in the form of lockers along the after half of the port and starboard sides and the stern, and leaving a space forward for chairs, or several cross-seats may be used in conjunction with the side lockers. Whatever type of permanent seats are used, however, there should be space left for several chairs.

The motor may be located amidships or under the forward deck, as is the case with the "auto-boats." I prefer the former location, however, for a "family" boat, as the motor is then at all times easily accessible.

You would probably find a two-cycle, three or four-cylinder 15-horsepower motor best suited for your power plant.

Discharging a Storage Battery

PORT CLINTON, OHIO.

Will you please send me directions for running the current out of and laying up an ignition storage battery on a motor boat? S. P. A.

It is a comparatively simple matter to discharge a storage battery. It could be discharged rapidly by short circuiting the terminals, but such rapid discharge is injurious to the plates, and a small resistance should be introduced into the circuit. Two or three small incandescent lamps placed in parallel afford a convenient method of allowing the current to run out slowly. If these lamps are not obtainable, however, the two terminals can be placed in a glass of water and brought within an inch or so of each other. This small water space will furnish sufficient resistance for an ordinary storage battery, although some hours may be required if the battery is nearly "full."

After the battery has been emptied, the water should be poured off and replaced with freshly distilled or pure rain water. The cells should then be charged to capacity (in order that all "free" sulphate may be reclaimed by the plates), and kept in a dry place where the temperature will not fall below the freezing point. Different types of storage batteries may require different treatment, but the foregoing applies to ordinary ignition cells. If your cell is of an especial type, I would advise you to communicate with the makers.

Centerboard for Power Boats

PHILADELPHIA, PA.

I read with interest the article in the November YACHTING on "Teaching the Motor Boat Manners," in which the author suggests that it might be a good thing to have a small centerboard on seagoing power boats, built in well forward, in order to help them lie head to sea when hove to—the shoal forefoot of the *usual* style of power boat making it almost impossible to heave them to successfully, as they will not even lie to a drogue.

I would say for the information of other readers of YACHTING whom this suggestion may have interested, that the small fishing skiffs on the Delaware River and Bay at the present time make use of just such an arrangement, which helps keep the bow from falling to leeward when in a choppy sea, and makes the boat lie better when working a shad net. These centerboards are being built in the new boats, even though no sail will ever be carried on them. The same rig would no doubt help some of the larger types of power craft. C. B. D.

Power Needed for a 36-Foot Power Boat

WEEHAWKEN, N. J.

Please solve, if possible, the following problem for me: I have a steel hull 36 feet 6 inches by 8 feet, weighing about 2 tons. What horsepower-engine would be suitable to drive her 8 to 10 or 10 to 12 knots? J. V. Z.

The amount of power necessary in any boat depends largely on her lines, and whether she can be easily driven. To get from 8 to 10 knots out of the conventional power boat hull of the given dimensions (if you really mean *knots*) would take about a 20-horsepower engine and one where the

engine is not rated above the power developed. To get from 10 to 12 knots you would need about 30 horsepower, the power increasing as the cube of the speed.

The engine builder will advise a propeller wheel for this outfit if you describe your boat, though one 24 inches in diameter would be about the thing.

For a Small One-Design Class

NEW HAVEN, CONN.

Early this year you were so kind as to give me some information concerning the rules and management of handicap yacht racing. During this season we have tried this here with but moderate success, mainly, I think, because most of the skippers have previously sailed in one-design classes only, and these men are naturally not as much interested in the handicap proposition. We are, therefore, trying to start another one-design class here.

What we have in mind is a small craft which can be furnished complete for between $150 and $200, so that members now owning cruisers could dip into the racing game without much outlay. I would like to know your opinion as to what type of boat would best satisfy our requirements. Dorys we have here, but are not particularly interested in them.

Would a dinghy class or a bug class, or a modification of the bug—such as was proposed for Gravesend Bay—be the best we could get?

Also would like if possible to know who built the type you might recommend, and what his rate would be approximately for a bunch of six or eight.

B. B. L.

THE MASCOT—A STOWAWAY ON A CAPE VERDE PACKET

The amount stated—$150 or $200—is not much to spend on a boat, and you are therefore somewhat limited in the type of boat you could get. A boat of the bug or star class is a better all-around racing proposition than a dory, though the objection to the present bug class is that with outside lead and open cockpits they are apt to sink if filled. The X Class which raced on Gravesend Bay last season are faily roomy boats for their size, able, are decked over, and are fairly fast. Six or eight could probably be built together for about $200 apiece.

The sailing dinghy class, such as they use at Toronto, are good little boats but very small, being only about 14 feet long and not as able as the Gravesend Bay class above mentioned.

Seaworthy Small Cruiser

TOKIO, JAPAN.

Will you kindly recommend to me the most seaworthy type of small sailboat for long cruises, through the columns of your excellent magazine? My work requires me to make frequent trips down through the Japanese Archipelago and occasionally to run across to the Chinese coast. Steamer travel in this part of the world is rather expensive, so it has occurred to me that as I am rarely in any great hurry on these trips it might pay me to build a small sailing vessel and hire a native crew of a couple of men, and I would like to have your advice upon the most suitable and least expensive type in regard to hull, rig, size, etc. J. W. B.

A boat small enough to be handled by a crew of three, and at the same time capable of crossing the China Sea in safety and comfort (we presume you desire the latter quality), is one which it would tax the ingenuity of any designer to produce. Frankly, we believe you would save time and money by chartering or buying a locally-built boat (of European or American design, of course) for your trips among the islands and sticking to the steamer for the crossings to China, at any rate in the typhoon season. However, if you are determined to carry out the plan of using a small boat for the whole itinerary, we would suggest that you study carefully the plans and description of the "ideal single-hander" by Mr. Winslow in this issue of YACHTING, and also the plans of larger "ideal cruisers" which will continue the series. One of these boats ought to be just what you are looking for, and if you decide to build you could not do better than to follow the suggestions contained therein.

The most important features for an offshore cruiser are that she shall be strongly constructed and so designed as to be a good seaboat. That is, she should have good beam and draft and generous freeboard (the last to keep water from coming on deck). The overhangs must be reasonably short to prevent pounding in a seaway, and a good sheer is desirable.

Less sail will, of course, be carried than on the racer or day-sailer, and it should be so divided as to be easily handled by a small crew. For this reason the ketch rig is preferable for a boat about 40 feet long on deck, and the yawl rig for anything smaller. Such a boat will not be fast in light airs, but if her lines are good, and she is not too "tubby," she will do surprisingly well in a breeze.

Kerosene Engine Ignition

BAYONNE, N. J.

Will you be so good as to tell me through the columns of your "Mess Room Talk" department how ignition is secured in a kerosene engine where electricity is not employed? E. V.

Two systems of ignition are used: (1) In the Diesel type of kerosene and heavy oil engine an extremely high compression is secured, and the heat due to this compression is sufficient to produce combustion the moment that the jet of liquid fuel is forced into the cylinder at the top of the stroke. Compressed air must be used in starting the engine; (2) in kerosene engines operating with less compression the necessary temperature for combustion is secured by having in the head of the cylinder an ignition bulb or plug which is not waterjacketed and therefore stays red hot from the successive explosions of the engine. The fuel, which in this case also is forced into the cylinder in liquid form at the top of the stroke, impinges upon the downward projection of this red hot plug and is instantly vaporized and ignited. In this type of engine the ignition bulb must be heated to redness with a torch before the engine will start.

MOTOR BOAT BASINS PROVIDED FOR THE USE OF BOAT OWNERS AT LINCOLN PARK, CHICAGO

Looking Backward at 1912 In looking backward over the year that is rapidly drawing to a close, the thing that impresses itself most forcibly upon one is the fact that from the viewpoint of the sport, it exceeded the promise of the spring and early summer. In spite of a business depression during the first half of the year that prevented much building and was felt more or less by manufacturers of engines and marine supplies, the season itself was the most active and interesting in many years. A number of international and intersectional events kept up the interest to the close of the season, the race for the new Yacht Racing Union Cup on the Great Lakes being one of the most important and interesting series of matches that has been recorded since the last America's Cup race. Many new one-design classes have also added to the success of the season. Not in many years have as many new special classes been formed.

Intersectional racing also has a beneficial effect on the sport, and should be encouraged. Just as no one man knows all there is to know about boat-sailing, so the yachtsmen of no particular section know so much that they cannot gain something by competition with those who may do things a little differently; and the effect of such matches is always a broadening one and should (though it does not always) engender good feeling and a friendly spirit that is much to be desired. This was apparent in the race for the British International Trophy this year, when England took back the Cup without any of the acrimony that has been the accompaniment of America's Cup and other international races.

While long-distance racing has lagged somewhat, two events of first importance were successfully run—the Bermuda race on the Atlantic Coast and the race to Honolulu on the Pacific Coast, the latter attracting a fleet of four fine boats.

These offshore cruising races have done so much for the development of amateur sailors and boats that they should not be permitted to die from lack of support. Power boat racing, while still in rather a chaotic state, made a marked advance in the speed of the boats, though the same cannot be said unqualifiedly as regards design. The hydroplane has been developed and much valuable data should have been gathered from the result of this year's experiments. Let us hope that another year will see this branch of the sport better organized, conducted and supported than has been the case this year.

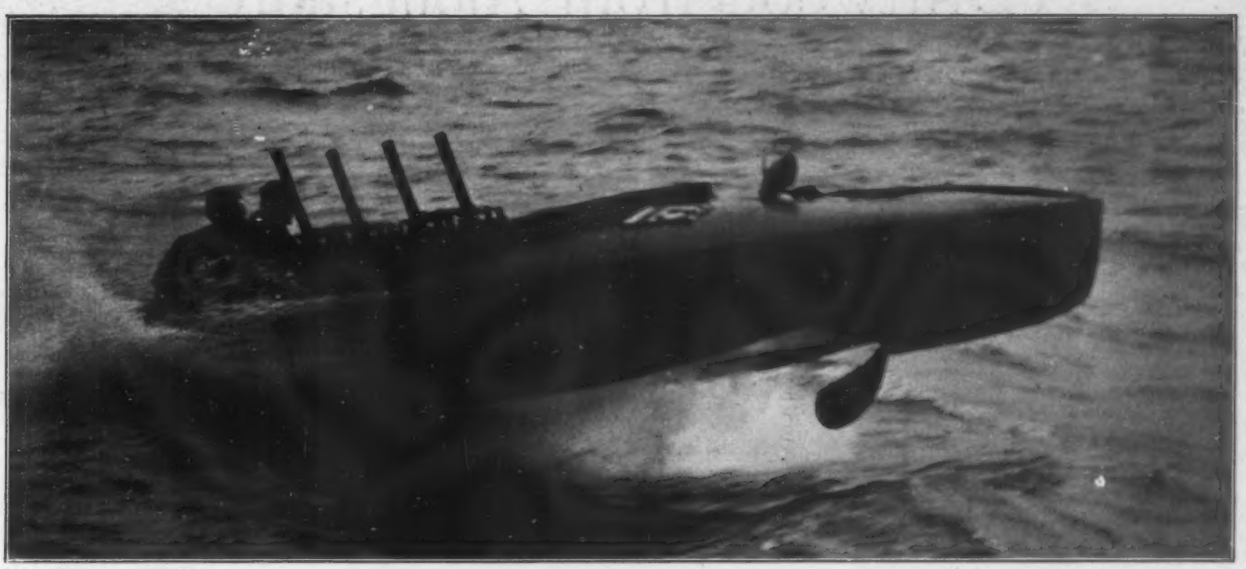
Fifty-eight Miles an Hour Not Attained In our October issue, in the account of the one-mile international record contest, one of the boats—Tech, Jr.—was credited with making 58.30 statute miles an hour over one of the mile laps of the race. At the time this was written the figures quoted were those given out by the committee in charge at at the close of the race, and showed that Tech, Jr., made the mile in 1:11 1/5 seconds, the timing being done by the Timers' Club of New York. It appeared later, however, that there was some question as to this, one member of the timing committee not catching the time accurately on his watch, there being a difference of 30 seconds in synchronizing the watch that did catch the time at one end of the run with the other watches. This has led to some question as to the exact time for this lap, in view of the fact that none of the other laps approached in any way the time of this first one. It seems only just to the boating public that this statement should be made in regard to the record of 58.30 claimed for Tech, Jr. No other "official" times have yet been announced by the Motor Boat Club of America, however, and the times as originally given are still matters of record.

The Ideal Single-Hander The article in this issue on the ideal single-hander is the first of a series of articles announced a short time ago on the ideal boat, and should prove of great interest to all real sailors, whether they are contemplating building or not. The boat was designed especially for YACHTING by Mr. R. E. Winslow, and is one of the best all-'round little craft we have ever seen. The conditions required a boat that could be sailed in all kinds of weather by one man, and yet with the maximum of living accommodations. She amply fulfills these requirements, and is one of the biggest little boats ever designed, every inch of room being utilized and the arrangement being thought out to the last possible detail. The plans will bear close study.

Next month will appear the ideal two-man boat, a craft about 40 feet on top, that can be sailed by two men and with living accommodations for three or four. This boat has been designed by Mr. John G. Alden. Following that will be the ideal small cruising power boat and the ideal 45-foot power cruiser, or "one-paid-hand" craft. These should make a series that will be of unusual value to every boat lover.

No Race for the America's Cup In spite of all the talk we have heard concerning a challenge for the America's Cup, it is now improbable that there will be a race for the trophy next year. While Sir Thomas Lipton is still in this country, he has not as yet formally asked the New York Yacht Club if they would accept a challenge under the Universal Rule; and, knowing his feelings in the matter, it is not likely that he will challenge under the rules that prevailed in the 1903 contest. At this writing, while the time required by the ten months' clause is not quite passed, it is unlikely that a challenge will now be received, as the ten months' notice required would bring the races in October, and while they have been held as late as this before, it is not probable that either a challenger or the New York Yacht Club would want them after the yachting season was entirely over.

The Motor Boat Shows Unusual activity is being shown by the boat and engine manufacturers and dealers in marine supplies in anticipation of the coming motor boat shows, which have come to mean so much to the boating public. The two large Eastern shows this year will be the Boston Show, from February 1 to 8, and the New York Show, at Madison Square Garden, February 15 to 22. Work has already been commenced on many of the boats that will be exhibited at these shows. There will be no Chicago Show this year under the auspices of the National Association of Engine and Boat Manufacturers, and this probably means that there will be no exhibit of marine engines and boats at Chicago, the manufacturers confining their energies to the two big Eastern shows.



Photo, Edwin Levick, N. Y.

58 miles an hour! It's hard on the varnish—but this varnish can stand it, for it's

VALENTINE'S
VALSPAR
"The Varnish That Won't Turn White"

The boat is the "Tech Jr." (built by Apel of Atlantic City) which covered a nautical mile in Huntington Harbor, September 5th in 1 minute, 11 1-5 seconds, equivalent to 50.7 nautical or 58.3 statute miles an hour.

The terrific force of the wash and spray dashing against the hull at this express train speed would soon destroy any varnish but Valspar. Its absolute waterproofness, combined with its unequalled toughness and hardness enable Valspar to stand up when all others fail.

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Send me, free of cost, sample of Valspar and materials for a real test.

Driftwood from Alongshore

The December Cover Design

The cover of this issue, which will make a strong appeal to every one whose seafaring ancestors have imparted an inherent love of the sea, is particularly interesting by reason of the fact that it was painted by a seaman, who, though he knows the sea thoroughly, has had but little opportunity to study art. The canvas is painted in oil by Thomas Peterson, at present a yacht captain on the Atlantic Coast, who has knocked around the world on all classes of vessels.

Born at Grimstad, Norway, he says that from childhood he had a great love for art, his sole ambition being to become an artist, and, with his natural instinct for sea and ships, his tastes ran towards marine subjects. His father died before he left school and the responsibility of the family falling on him a few years later, he left home at the age of 14 to go to sea, getting a job on a passenger steamer running between Christiania and Hamburg. All of his spare time he devoted to painting, often getting into trouble over his hobby by working at it while on duty. An artist happening to see some of his work at this time encouraged him and offered to give him free lessons in painting, but his meagre savings did not permit him to take advantage of the offer, though he made up his mind to make a change to better himself and sailed for Africa on a barkentine, having heard that South Africa was a good place in which to make money. After an unusually hard passage, during which his vessel was dismasted and towed back to England for repairs, they arrived at the Eastern Coast of Africa, where he left the vessel and got a job ashore. Here he worked a year and a half at good wages, when he lost his job on account of poor business. Then, knocking around on the coast for some time, during which he was wrecked on a small fishing vessel near Port Natal and lost all his savings, he shipped on a sailing vessel bound for Australia, from which point he signed on a little bark bound for London around Cape Horn, arriving back in London several years from the time he had started, with still not sufficient money to pursue his study of art. After staying home for a while he sailed for America in the year 1900, sailing in American vessels and yachts up to the present time. "Thus," he says, "I still have my first lesson in art to take. The little that I have been able to pick up in all these years has given me lots of pleasure in my spare time."

New Taft Cats For 1913

The building of two new contenders for the Taft cup next summer has been announced by the designer, Mr. John A. Connolly, Jr., of Sheepshead Bay, N. Y. The principal dimensions of this class are, 21 feet 11 inches over all, 16 feet waterline, and 8 feet 1 inch beam. Sail area, 270 square feet.

Mr. Connolly has sanguine hopes of these two boats turning out successfully, as this is his first chance at this class and he has done his best to make good. Mr. Connolly is one of our younger designers, but he has produced several fast boats in his short career, among them the "P" class champion Alva, Rebel II, the Bellport Bay Yacht Club one-design class, and a number of speedy motor boats. He has recently completed designs for two new one-design classes for the Bellport Bay Yacht Club (Great South Bay, L. I.), the larger class being 18 feet on the waterline and 32 overall, and the other a diminutive "Fly Class"—little jib-and-mainsail racers of only 10 feet waterline length.

A Successful Handicapping System

In the August number of YACHTING, under the heading "How to Run a Successful Club Race," appeared a portion of a letter from Mr. F. W. Pratt, of the Hudson River Motor Boat Club's regatta committee. Mr. Pratt's scheme, as given in that communication, was to hold a series of three races, the time of a contestant taken on *some one lap* of the first race being used as a basis for handicapping in all three races of the series. As the contestants would all be anxious to get as good a position as possible in the first race (which counted as much as any other toward the winning of the series), and as no one knew on what particular lap of the first race his time would be taken, Mr. Pratt believed that there would be no danger of unsportsmanlike "lagging," and that the system would work out in practice with excellent results. The following extract from a letter recently received from Mr. Pratt is interesting as a report upon the success of this ingenious system:

"I believe the system used by our club this year has done more toward helping the club than anything ever attempted, and am very glad to explain same to anyone interested and am glad you have taken hold of it and are publishing it, as I, personally, am interested in boating and am glad to do all possible to promote same.

"Our closing races were held Sunday, October 6, and as you have not had a report on same will go over them hurriedly, giving you an idea of how system worked out. There were five boats that covered practically the course. The Billiken II, owned by K. B. Lamb, a speedboat; the Marinetta, owned by H. B. Freeman, a cruiser, which finished first, second or third in numerous open races held round about New York this year; the Sylvemort, owned by William Israel, a cruiser; the Madvic, owned by B. Bauer, a glass cabin boat; the Leila Clare, owned by A. B. McCrea, a 17-foot open boat, used as a tender to his cruiser Tireless.

"On this day the advance guard of the navy arrived early in the morning, and numerous battleships were anchored along the river, causing the committee to use the battleships as turning points instead of putting out stake boats. The Madvic during the second race broke her steering gear and had to retire; barring this accident all boats finished.

"At the close of the second race on points two boats were tied for first, one boat one-half behind and the fourth boat only one full point behind. At the close of the third race the Leila Clare had a clear lead, therefore winning on points. The Billiken II and Sylvemort tied on points for second place and drew lots at the clubhouse for position, Billiken II winning. And this in spite of the great dissimilarity in size and speed of the various contestants!

"The club has held this year six races, placing up for competition cups and medals valuing between $300 and $400, and has had a very successful season. We went out of commission Sunday the 20th."

Island Heights Motorboat Club Formed

The Island Heights Motorboat Club is a new organization, which has been formed by yachting enthusiasts of Island Heights, N. J. The club now has seventy-five members and the number is increasing rapidly. A constitution and by-laws have been adopted and the following officers for the coming year elected: Commodore, Arthur B. Kiefaber; vice-commodore, Edwin Edwards, Jr.; rear commodore, Augustus Wood; secretary, J. Howard Pile; treasurer, George McKaig.

The club is to be open all year and a clubhouse has been fitted up with suitable accommodations.

Motor Boat Show Dates

The 1913 New York National Motor Boat Show will be held in Madison Square Garden, and the dates decided upon are February 15 to 22, inclusive. The tremendous interest that has been aroused in not only the yachting but also the commercial end of motor boating is evidenced more and more each year by the increasing number of marine enthusiasts who look forward to this annual exhibition of motor boats, motors and accessories with the keenest of anticipation. Visitors to the last show remember with pleasure the novel results in the way of decoration, music, etc., that were introduced; and it is confidently asserted that the 1913 New York Motor Boat Show will be even more attractive in the way of exhibits and scenic effects.

Officers of Hampton Roads Y. C.

The annual meeting of the Hampton Roads Yacht Club resulted in the election of officers as follows:

Commodore, R. P. Waller; vice-commodore, Louis Fowler; rear commodore, Shirlie Pattie; fleet captain, Charles S. Stanworth; secretary, J. K. Waterman; treasurer and paymaster, Otto B. McLean.

Board of Governors—Dr. R. M. Barrett, R. C. Aunspaugh, Crawford M. Nottingham, E. B. Ives, Hugh G. Whitehurst and Robert Ridley.

Resolutions were adopted extending a vote of thanks to retiring Commodore B. F. Mitchell and the board of governors for their efficient conduct of the affairs of the club during the past year.

Navy Adopts the Barocyclometer

The Navy Department has announced its intention to install barocylometers in all the naval stations on the Atlantic Coast and perhaps in the ships of the Atlantic fleet. This interesting instrument is the invention of the Rev. Jose Algue, director of the Philippine weather bureau. It is capable of detecting a hurricane five hundred miles away, thus enabling ships equipped with it to steer clear of storms. This instrument has been in use in far eastern naval stations and in ships of the Asiatic fleet for many years.

Cassandra Changes Hands

The steam yacht Cassandra has been sold by Mr. Roy [illegible]amey, of the New York Yacht Club, to Mr. George J. Whelan, Larchmont Yacht Club. The Cassandra is the largest steam yacht in American waters. Her dimensions are: Length over all, 287 feet; beam, 33 feet; draft 16 feet. She was built in 1908 by Scott & Co., of Greenock, Scotland, the design of A. S. Cheseborough, of Bristol, R. I.

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are of the class that each sale increases your business. We have so much that is new in mind for 1913 that now is the time to arrange for representation. We are searching only for the live dealer and to him a permanent protection will be given. 1913 will be a New England Quality Year, and our advice is to arrange as early as possible for territory.

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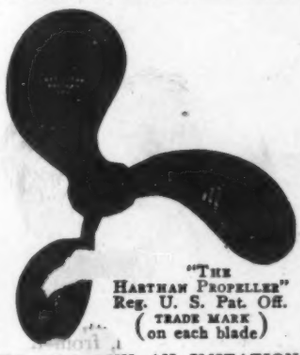

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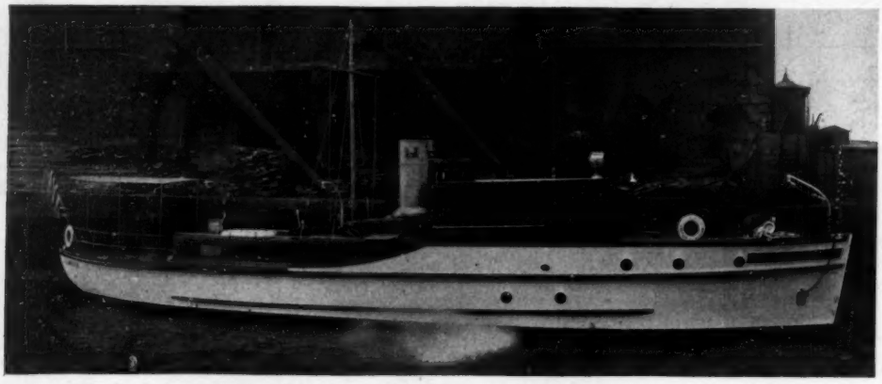
Of Interest to the Skipper

A Buffalo-Powered Inspection Boat

The fact that the United States Government, like the rest of the world, is coming more and more to realize the advantages of gasolene power is shown by the fact that two 36-horsepower Buffalo heavy duty engines were selected as the power plant for the 70-foot inspection boat Capt. J. J. Meyler, which has just been delivered to the United States engineers at Jacksonville, Fla., by the Matthews Boat Company, Port Clinton, Ohio. Heretofore steam has been the power for Government boats of this kind, but in the specifications for the Meyler two 36-horsepower engines were called for, and on the trip from Port Clinton to Jacksonville they gave as good service as any steam engine could hope to give, and everyone was satisfied.

The U. S. S. Capt. J. J. Meyler is 70 feet long overall with 14 feet beam. In her trial tests at Port Clinton she made better than 10 miles per hour, which was considered remarkably good, considering her lines, which are designed with a view to seaworthiness rather than speed. The boat will be used for inspections at various harbors along the Florida coast.



U. S. Inspection boat, Capt. J. J. Meyler, equipped with two 36-horsepower heavy duty Buffaloes

The crew's quarters forward are roomy and comfortable, a feature which is of great importance in a Southern climate. The motor room, immediately aft, is under the deck house, and there is good headroom and plenty of space for the two 36-horsepower engines, and also for the general electric auxiliary lighting plant which supplies light for every part of the ship. The ventilation is by means of ports and special ventilating pockets built under the seats of the deckhouse overhead. The gasolene is stored in copper tanks at the after end of this compartment, having pans draining overboard. These tanks are very strongly constructed and have some features which are not usual in the ordinary type of yacht. The gasolene capacity of 400 gallons is divided between two tanks arranged so that they will fill from the deck. A gasolene pump is placed in the equalizing line between the tanks, so that the gasolene can be emptied from either tank on deck or the gasolene from one tank thrown into the other.

The officers' quarters, at the after end of the boat, are furnished in birch throughout. The main cabin extends the full width of the boat. This cabin is also used as a dining saloon. Adjoining it are two staterooms with baths for the use of officers. The deckhouse is arranged with seats about the sides, and the boat is controlled from this point. The searchlight is operated by means of the auxiliary lighting plant.

A New 96-Horsepower Heavy Duty Scripps

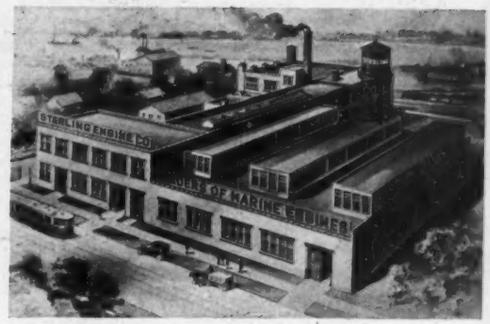
That manufacturing activities have kept pace with the sales and advertising work at the Scripps Motor Company is evidenced by the addition of a new 96-horsepower, six-cylinder, extra heavy duty, power plant to their other sizes. Modeled along general Scripps lines, this motor has cylinders of 7½-inch bore by 9-inch stroke, cast separately and fed through a unique inlet pipe from a single carbureter. Two well-designed exhaust pipes, serving three cylinders each, are mounted on the same side, the cylinders being of the "L" head type.

The motor is designed to run from 100 to 450 revolutions per minute and its approximate weight with clutch is 5,300 pounds. The cylinders and pistons are made of special, close-grained, gray iron, finished within limits of 1/1,000 of an inch. The connecting rods are of "I" sections of drop-forged steel with bronze wrist pin bushings, lower bearings of Babbitt, easily adjusted.

The crank case is of iron. The crank shaft is forged from special carbon steel, double heat treated. Valves have cast iron heads and carbon steel stems. The push rods are of the roller type, pins and rollers hardened and ground; fitted with hardened adjustment nuts.

The compressed air type of self starter, made under Chalmers Motor Company patents, makes this motor, in spite of its large size, very easy to start.

For those desiring to use kerosene, the Scripps Motor Company are prepared to furnish without extra cost a device allowing the use of this oil. The first two motors of this type which left the shop proved their ability and consistency by driving the boat which they powered through the 1912 Great Lakes Reliability Run without trouble or adjustment, thereby winning a perfect score in this event.



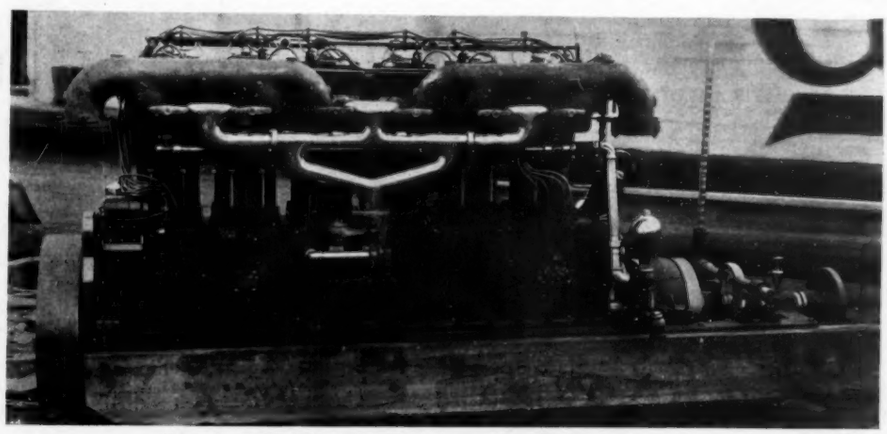
The enlarged factory where Sterling engines are made

Enlarged Facilities for Sterlings

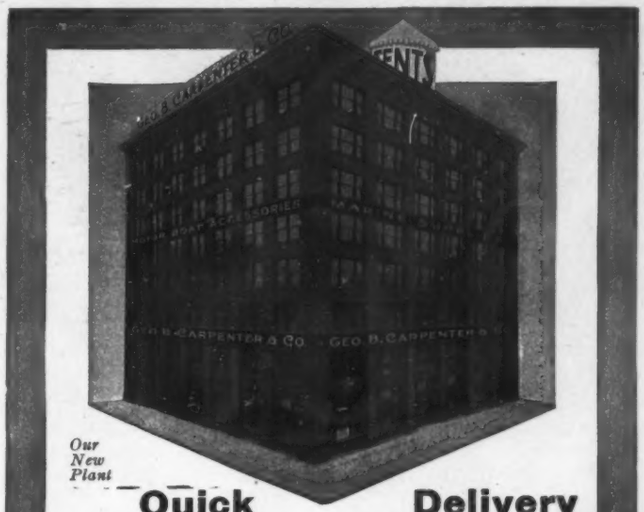
The Sterling Engine Company of Buffalo, N. Y., say they have had an unusually successful season during 1912. The coming year will find them well prepared to meet an even larger increase in business. The immense addition to the plant on Niagara street will be finished early in the spring and will about double the working capacity of the factory. The new building extends along Niagara street and will be converted into a modern assembly room, affording every facility conducive to accurate workmanship. It will have natural light from three huge monitors in the roof running the entire length of the building, and workmen will have plenty of room to operate. It is estimated that the business of 1913 will be increased a third over the preceding season.

Sterling engines made a remarkable showing in every branch of the marine service during the past year. Installed in speed boats, runabouts, open launches, light and heavy cruisers and commercial boats of every description, they performed their work in a most consistent and satisfactory manner. In the racing game the eight-cylinder 150-horsepower Sterling engine made practically a clean sweep of all the big regattas in the country. It was selected for the entire American Team of Cup Defenders for the British International Trophy on Huntington Bay and powered such well-known speeders as Baby Reliance II, Baby Reliance III, Ankle Deep, Tech Junior, Neptune III, Belle L, champion of the South, and a score of others. The Dixie Junior hydroplanes, including the famous little P. D. Q. II of Alexandria Bay, are also driven by the six-cylinder Sterling engine. There are several new International Cup challengers already being built in this country for the 1913 races that will be driven by the eight-cylinder 150-horsepower engine.

In the cruising class, Sterlings found their way



The new 6-cylinder, extra heavy duty 96-horsepower Scripps motor



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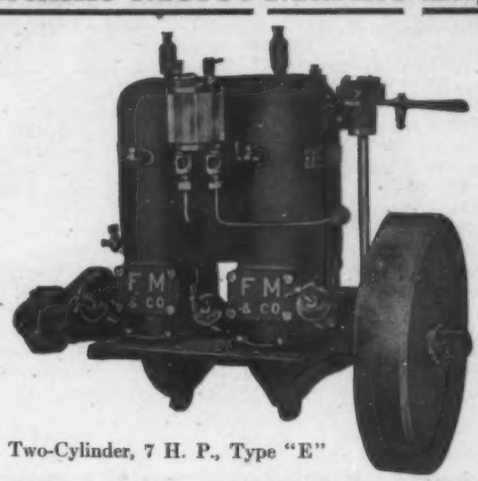

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Reliable—Economical—Efficient

The perfected result of over thirty years of engine-building experience. Designed and built for hard service. Meet all requirements.

Start easily without cranking. Develop more than rated power and can be depended upon whenever you want service. All parts easily accessible and interchangeable. Built in one, two, three and four-cylinder models.

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THE *CLEAN* PIPE
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THE COOLEST AND CLEANEST SMOKE

No Nicotine Deposits; No boiling or steaming in the bowl; No soggy, rank tobacco; No caking; No rank odor in the room after smoking; every particle of tobacco consumed; outlasts all other pipes; endorsed by smokers everywhere.

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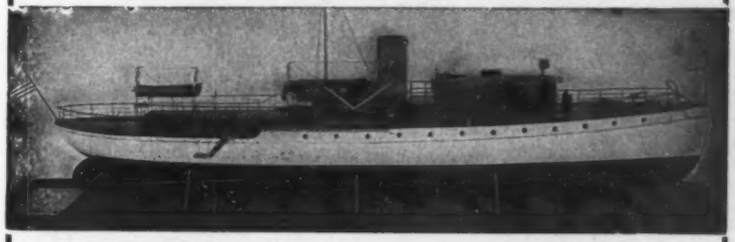

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into many of the largest and handsomest boats of the year. Daniel Good, of Buffalo, N. Y., installed three 120-horsepower heavy duty engines in his Elmasada II, a 110-foot boat of steel construction, and Lawrence F. Percival, of Boston, drives his fast 60-foot cruiser Barracuda with another. Other prominent cruisers of the season, Sterling powered, are Voyager, the 60-footer owned by A. P. Brush, of Detroit; Wethea, the 82-footer of Howard W. Baker, Minneapolis; Helianthus, owned by "Nat" Herreshoff; Estella, owned by A. C. Lombard, Boston; Thistle, owned by J. H. Wallace, New York; Susanne, owned by E. H. Close, Toledo, Ohio, and many others. The 50-foot barge for the admiral of the Atlantic Squadron and attached to the U. S. S. Louisiana is powered with a pair of 45-75 horsepower Sterlings and make a speed of 19 miles.

The Sterling line for the coming season includes four-cycle engines for every kind of service, speed boats, runabouts, open launches, light and heavy cruisers and commercial boats. They are built in two, four, six and eight cylinders, from 8 to 150 horsepower. The heavy duty slow-speed engines are as follows:

Model C.—8-10 horsepower, two cylinders; 12-15 horsepower, two cylinders.

Model D.—20 horsepower, two cylinders; 25-35 horsepower and 40 horsepower, four cylinders; 60 horsepower, six cylinders; 100 horsepower, eight cylinders.

The medium duty and speed engines are:

Model B.—18-25 horsepower, four cylinders; 25 horsepower medium duty, four cylinders; 30-50 horsepower, four cylinders; 45-75 horsepower, six cylinders.

Then there is the 150 horsepower, eight cylinders, 5½-inch bore, 6¾-inch stroke.

A 1913 Model Gray for Large Yachts

Of special interest to the owners of large yachts, cruisers and work boats is the 1913 announcement of the Gray Motor Company featuring their 36-horsepower 3-cylinder Model "T" engine. Although this model has been a leader of the Gray line for the past three years, the 1913 model, especially in the large size, is without question going to be more popular among owners of the larger pleasure and work boats than ever before.

The illustration herewith shows the 3-cylinder 36-horsepower unit power plant with Paragon reverse gear attached to the extended base, Bosch high-tension magneto, and the new 1913 rear-starting equipment. This starting device is one of the notable features. It gives the man who has his boat equipped with one of these plants the advantage of having a motor that starts and operates with the same simplicity and ease as the high grade automobile motor.

The Gray Company says that the Model "T" is a "3-type engine in one" which accounts for its great adaptability to different kinds of service. Regularly furnished it is a combination two and three port motor, yet it can be run separately as a two port, as a three port, or as a combination of the two. Ever since the Model "T" was brought out, three years ago, it has been designed to lubricate through the fuel supply. This system has been so satisfactory in every way that every engine in the Gray line during 1913 will use it.

Every feature that would lead to accessibility has been employed in designing this model. There are hand hole plates on either side of the crank case, held with cap screws. By removing these hand hole plates, loosening up the connecting rod, removing the cylinder head, the piston and connecting rod can be lifted through the top. In this way inspection and adjustment of the connecting rod and bearings are accomplished in a moment's notice. By using the removable head it is not necessary to take off cylinder to get at a piston.

All Gray Model "T" motors are regularly furnished with standard gasoline equipment. They are also, however, designed to receive the patented Gray kerosene injector, and can be converted into a kerosene motor at any time the operator wishes.

About the first of December some special literature, giving complete details and full information about this 36-horsepower 1913 model, will be issued. This will give the man with a large boat who wishes to make installation early, and who wishes to have his boat in commission for the first day that the water is navigable, a chance to study this new three-cylinder unit power plant early in the season. The Gray Motor Company report that they have a fairly good quantity of these new power plants completely assembled, tested, finished and ready for shipment, so that the man who wants his motor early can have shipment made the day he desires.

A Bottom Paint of Unusual Merit

Those yachtsmen who are looking to get the best speed out of their boats and who believe that a good smooth bottom contributes to that result, will find in Marblehead Anti-Fouling Green a bottom composition that has won a very wide popularity in the last ten or fifteen years. It is manufactured by the Stearns-McKay Manufacturing Company, of Marblehead, Mass., who manufacture marine paints exclusively. The Marblehead Green gives a wonderfully smooth, slippery finish for racing yachts and launches, and has great durability and anti-fouling qualities. The firm guarantees absolute satisfaction to those yachtsmen who use this product.

The Strife for Speed

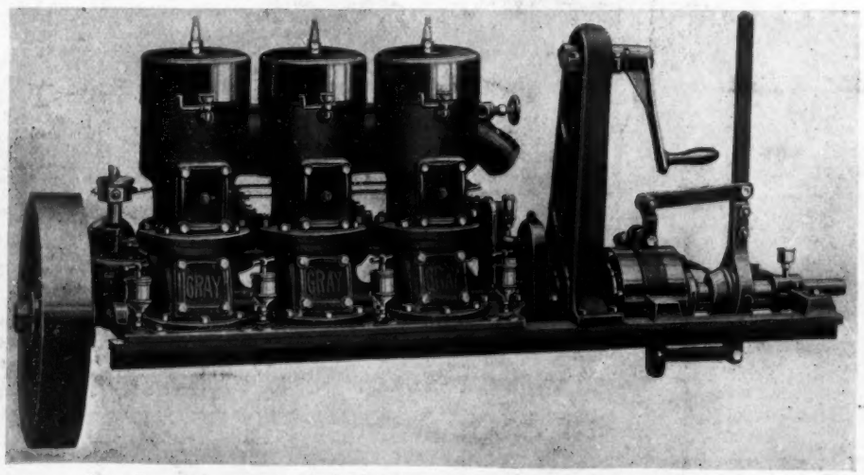
(*Continued from page* 345.)

Dixie family, made a record of 35.12 nautical, or 40.44 statute miles an hour over a course established with absolute accuracy by a well-known civil engineer by means of triangulation from base lines on the Eaton's Neck and Lloyd's Neck shore. Moreover, in mile speed trials under British Admiralty conditions Dixie achieved a speed of 39.26 nautical, or 45.22 statute miles per hour. And bear in mind this is the record up to date of speed made over an accurately measured mile and under British Admiralty conditions—the standard adopted by the British and American Governments. We have heard reports of miles made in the lesser times of 1.17, 1.10, and even 1.07 on Western waters during the past season; but doubt has been raised as to the accuracy of the courses, and, at all events, the trials have not been made under British Admiralty conditions.

In the first of the three Harmsworth Cup races of 1912 Baby Reliance II traveled 30 miles at the rate of 37.11 nautical, or 42.68 statute miles per hour, and in the last and winning race Maple Leaf IV covered the same course slightly faster, at 37.21 nautical, or 42.85 statute miles per hour.

The gain in speed made in races in eight years is, therefore, from something less than 25 statute miles per hour in 1904 to something more than 42.6 statute miles per hour in 1912, with a mile record of 45.22 statute miles per hour as the "fastest ever." But at what a cost! Compare the half-horsepower-per-ton of displacement of the Olympic, or the approximate one-horsepower-per-ton of a fast battleship or cruiser, with the (nearly) 100-horsepower-per-ton of Dixie IV or the 133-horsepower-per-ton of Maple Leaf IV. If Olympic had the power of Maple Leaf IV in proportion to her displacement, she would have engines of eight millions of horsepower, and if she had cost as much in proportion the bill for the big steamship would have been something like four hundred millions of dollars.

These figures are staggering, but they emphasize the fact that the racing interests pay the bill for improvements in construction and increase of speed in motor-driven vessels as well as in sailing craft, for every step forward by the racing men has stimulated an improvement in the commercial field—every step forward, that is, excepting, as yet, in the development of the hydroplane.



New Gray 36-horsepower, 1913 Model T motor, with rear starter and reverse gear

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An Experiment that Succeeded

(Continued from page 368)

The conclusion that justifies the somewhat prolonged and detailed means by which it is reached in this story is that my successful experiment makes it very clear that no yachtsman need abandon sailing for power boating merely because the latter alone gives substantial certainty to the sport. If the wind fails or if it is dead ahead and the tide is running with it, and the hour-glass is likewise running low, or even if there is a breeze and time is of the essence of things, the engine is a present need and comfort. On other days, when sea and sky and all that in them is combined to fill to the brim the measure of one's happiness, and he approvingly quotes Barry Cornwall's familiar lines:

"I never was on the dull, tame shore,
But I loved the great sea more and more,"

he may thank God that wind and sail and a good little ship may continue to reign supreme.

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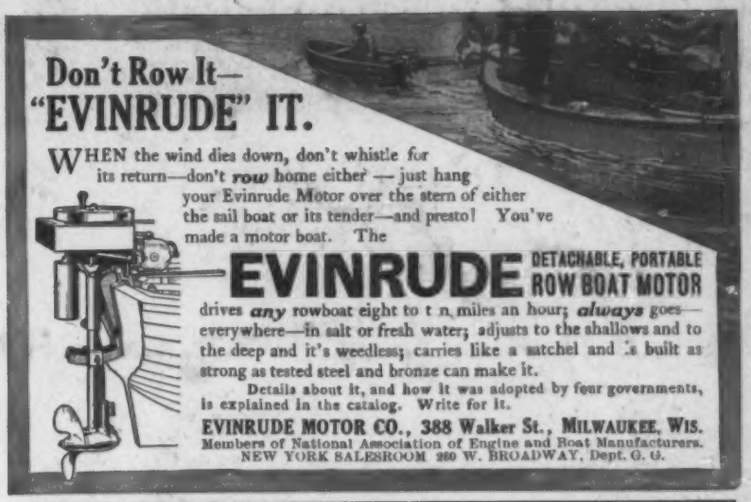

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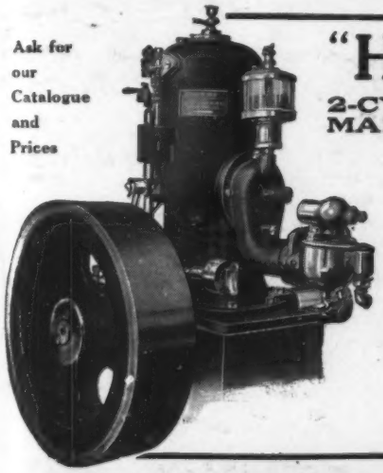

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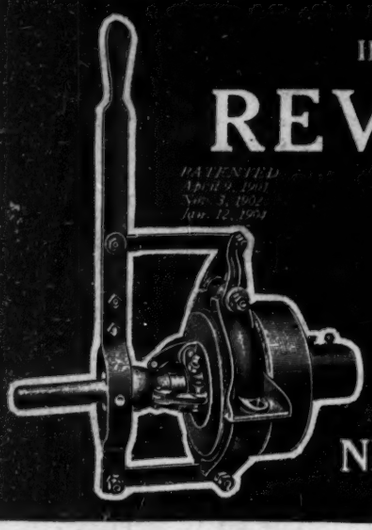

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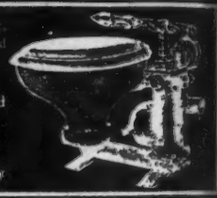

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Accessories, Engine Equipment, Etc.

Carpenter & Co., Geo. B. 385
Dayton Electrical Mfg. Co. 387
Diem, Gus A. 388
Durkee & Co., C. D. 389
Ferdinand & Co., L. W. 389
Fogg, M. W. 389
Janney, Steinmetz & Co. 389
Koven & Bro., L. O. 339
Krice Carbureter Co. 387
Michigan Wheel Co. 339
New York Gear Works 388
Pyrene Mfg. Co. 387
Splitdorf Electrical Co. 385
Stamford Foundry Co. 383
Waltham Watch Co. 388

Marine Engines

Buffalo Gasolene Motor Co. 390
Camden Anchor-Rockland Machine Co. 389
Elco—The Electric Launch Co. ..... 2d Cover
Evinrude Motor Co. 387
Fairbanks, Morse & Co. 385
Gasoline Engine Equipment Co. 389
Gas Engine & Power Co. & Chas. L. Seabury Co. ..... Back Cover
Gray Motor Co. 340
Gray & Prior Machine Co. 387
Scripps Motor Co. 387
Sterling Engine Co. 390
Standard Co., The 383
Trebert Engine Co., H. L. F. 389

Miscellaneous

Boston Motor Boat Show 390
Boucher Mfg. Co., H. E. 385

Miscellaneous—Continued

Hamburg-American Line ..... 3d Cover
Lord Pipe Co. 385
Three-In-One Oil Co. 387

Motor Boats, Dories, Etc.

Atlantic Co. 389
Davis Boat Works Co. 386
Elco—The Electric Launch Co. ..... 2d Cover
Gas Engine & Power Co. & Chas. L. Seabury Co. ..... Back Cover
Milton Boat Works 388
Weckler Boat Co. 339

Paints and Varnishes

Stearns & McKay Mfg. Co. 389
Valentine & Co. 381

Propellers and Steering Gears

Columbian Brass Foundry 387
Edson Mfg. Co. 383
Hyde Windlass Co. 387
McFarland Foundry & Machine Co. 383
Michigan Wheel Co. 339

Publications

Co-Operative Publishing Co. 389
Forest and Stream Publishing Co. 388
Outing Magazine, The 389

Sails and Sail Makers

Boston Yarn Co. 383
Griffin, William H. 339
Robinson & Co., G. W. 339
Wilson & Silsby 339

Second-Hand Boats

Cox & Stevens 337
Gielow & Orr 335
Tams, Lemoine & Crane 336
Seaman, Stanley M. 33
Hollis Burgess Yacht Agency 33

Yacht Brokers and Naval Architects

Alden, John G. 33
Barney, Morgan 33
Binney, Arthur 339
Bowes & Mower 339
Bruns, Kimball & Co. 339
Cox & Stevens 339
Connolly, John A., Jr. 339
Gielow & Orr 339
Jennings Yacht Brokerage Co. 339
Jones, Frank Bowne 339
Mackintosh Yacht Agency 339
Nock, F. S. 339
Owen, George 339
Tams, Lemoine & Crane 336
Watts, J. Murray 339
Whitaker, Morris M. 339

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